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ABSTRACT

This document presents case studies of eight demonstration projects selected to assess the practicality and feasibility of a monograph for improving and measuring the impact of vocational education demonstration projects. An introduction provides background of the project that developed that monograph and information on the case studies, including selection and procedures. The case studies themselves follow. Each includes a project description (target area and population, goals and objectives, project activities administrative structure, dissemination activities, adoptions), evidence of impact (interim acceptable evidence, final acceptable evidence), contributions to project success and improved impact, and alternative timing options. These projects are included: Demonstration of the National Institute of Education's Experience-Based Career Education (EBCE) Program, Portland, Oregon; EBCE in Cooperative Education and Work Experience, Norman, Oklahoma; Wayne Design for Career Education, Wayne, New Jersey; Career Ladder Infusion Model Building, Garden Grove, California; EBCE for Mentally Disabled Students, Fort Dodge, Iowa; Solar Energy in the Building Trades, Falmouth, Maine; FACIT: Florida's Approach to Competency-Based Individual Teaching, Tallahassee, Florida; and Preferred Learning Styles of Vocational Education Students, Appleton, Wisconsin. A final section summarizes the eight case studies and discusses implications for the monograph. (YLB)

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DEVELOPMENT OF CRITERIA TO MEASURE THE EXTENT OF IMPLEMENTATION AND THE EFFECTIVENESS OF DEMONSTRATIONS IN VOCATIONAL EDUCATION

CASE STUDIES

Submitted to:

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CE042738

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INTRODUCTION

Under contract to the U. S. Office of Education, Development Associates is currently in the final stages of developing a monograph for improving and measuring the impact of vocational education demonstration projects. A demonstration project in vocational education is a project designed to (a) serve as an outward expression of an educational practice in the interest of having it replicated or adopted by other schools or school systems or (b) serve as an operational evaluation and adaptation of an educational practice with the intent of ultimately packaging it for replication or adoption in other schools or school systems. A demonstration project in vocational education, therefore, represents a departure from traditional educational practices and is implemented for the purpose of encouraging change and improvement. The monograph being prepared will present criteria, standards, and required documentation for evidence of demonstration project impact; roles and accomplishments of planners, implementers, evaluators, monitors, and disseminators in achieving increased impact; and recommended criteria for funding agencies to use in reviewing demonstration project applications and proposals.

In preparing the monograph, a literature review was conducted of the state of the art on the planning and implementation and on measuring impact and spread of demonstration projects. Panels of experts from various constituencies in vocational education were also convened to provide advise and input to the monograph. Finally, eight demonstration projects were selected and information was collected to assess the practicality and feasibility of the monograph. This document presents case studies of those eight demonstration projects. The case studies focus on whether successful projects have collected or, if not, could collect the types of data specified in the monograph for documenting acceptable evidence of project impact and have achieved the standard set for each criterion in the evaluation model. The case studies also discuss activities which were found to lead to project success.

The eight projects on which case studies were prepared were chosen from 25 nominated as successful by U. S. Office of Education staff and directors of six Resource Coordinating Units in state departments of education. As required by the RFP, four projects were chosen as representing those administered directly by the U. S. Office of Education, while four others were chosen from those administered by state education departments. Projects were also selected to provide a range of geographic areas, stages of completion, and substantive focus. However, as all federally administered projects previously funded were of the career education type, this somewhat restricted the range of projects selected. The projects finally chosen were:

Federally Administered:

- Demonstration of NIE's Experienced-Based Career Education Program
  Portland, Connecticut
- Experienced-Based Career Education Program in Cooperative Vocational Education and Work Experience
  Norman, Oklahoma
- Wayne Design for Career Education
  Wayne, New Jersey
- Career Ladder Infusion Model Building
  Garden Grove, California

State Administered:

- Experienced-Based Career Education for Mentally Disabled Students
  Fort Dodge, Iowa
- Solar Energy in the Building Trades
  Falmouth, Maine
- Development and Validation of a Competency-Based Preservice/Inservice Learning System for Vocational Teachers
  Tallahassee, Florida
- Preferred Learning Styles of Vocational Education Students
  Appleton, Wisconsin

Initial visits to the projects were made during the weeks of February 26 and March 5, 1979 to brief the project directors and their staffs on the purpose of the monograph and plans for the case studies. During this visit, proposals, reports, and other relevant documents were collected. The eight projects were visited a second time for one week each by two-person teams during October and November 1979 to obtain more specific information for the case studies. During the one-week period, project proposals and reports, evaluation plans and reports, dissemination materials, and other existing documents were obtained and used to record data regarding project history, activities, and evidence of impact. Each project director was interviewed to obtain specific evaluation and process data not available from existing reports and to obtain other information for assessing the usefulness of the monograph. A separate interview with the evaluator was held to discuss the feasibility and utility of collecting the proposed documentation for interim and final evidence. The project monitors at the SEAs were also interviewed to obtain information on their roles and the roles of their organizations in the planning and implementation of the projects. A maximum of five

schools or school districts which adopted the project were also contacted in person or by phone to obtain information on the adoption process from their viewpoints.

Standardized interview guides and other forms were developed to collect the required data. These instruments allowed for comparability of information across projects and across data collectors. In cases where projects lacked components relevant to the monograph, interviewers asked project staff to speculate on the usefulness and effects of the missing elements. Following the data collection effort, the case studies were prepared. The monograph was then revised to incorporate the case study experience.

The case studies appear in the following section of this document. Following them, a summary of implications for the monograph is presented.

DEMONSTRATION OF NIE'S EXPERIENCE-BASED CAREER EDUCATION PROGRAM

Portland, Connecticut

I. PROJECT DESCRIPTION

This project was designed to implement and demonstrate the experienced-based career education (EBCE) model developed by the Appalachian Education Laboratory. The project's goals were to demonstrate the model at Portland High School in Portland, Connecticut, to disseminate information, and to provide training and technical assistance to potential adopters from Connecticut and Southern New England. The project was funded directly by USOE for three years from October 1976 to September 1979. The total amount of federal funding to the grantee, the Portland Board of Education, was approximately $336,000 for the three year period.

A. Target Area and Target Population

Portland is located on the Connecticut River in the central part of the state. It is adjacent to the town of Middleton and 15 miles south of the state capitol of Hartford. Its location, close to four major highways, allows easy access to the state's major cities. Portland has a population of 8,600 according to the last census. Its major industries are closely linked to the Connecticut River and include oil transportation, cement, fertilizer, and boat yards. Tobacco is an important agricultural industry.

The Portland public schools are operated by a nine-member, publicly elected Board of Education. The schools are financed mainly by local real estate taxes with help from the state and special grants and programs.

The schools are organized on a K-5, 6-8, 9-12 system and have a total enrollment of 1,908. There are 510 students in the town's single high school. Minority students make up 5% of the total student population of which 3% are Black, 1% are Spanish-American, .25% are American Indian and .75% are Asian-American.

During the past 11 years, the school district has created a variety of programs to meet the needs of the substantial number of students who, for a variety of reasons, were traditionally unable to achieve the basic competencies required for successful adult living. These students are those who:

- choose to graduate from high school early, on an accelerated basis, without using additional available time to obtain

realistic, meaningful skills, guidance and knowledge of careers and world-of-work realities;

- perform in school significantly under their potential because of a lack of motivation caused by the perceived irrelevance of existing learning programs;
- will remain unemployed (and perhaps unemployable) after completing (or leaving) school;
- have difficulty in perceiving the links between academic and career learning;
- seek, but cannot find, realistic opportunities to actively explore career possibilities in depth prior to making career decisions;
- have attitudes, expectations, and other limitations which place them at a disadvantage in dealing effectively with the subtlety and demands of urban labor markets; or
- have socioeconomic, academic, stereotypic or other handicaps which unnecessarily curtail their career horizons and/or opportunities.

B. Goals and Objectives

The project's specific objectives are designed to meet the needs of the above students. These objectives are:

- to provide a bridge between career-oriented and academic-oriented educational activities;
- to provide students with the personal attitudes and skills required to make effective career decisions;
- to expand and focus student career aspirations;
- to increase student motivation to learn and achieve;
- to increase cooperation between educational and manpower institutions;
- to broaden occupational opportunities for youth; and
- to provide expanded learning opportunities to students who are academically, socioeconomically or otherwise handicapped.

C. Project Activities

The Experience-Based Career Education model implemented at Portland High School was developed by the Appalachian Educational Laboratory in Charleston, West Virginia. The model requires the development of an individualized program for each student which allows him/her to pursue a work and study program directed at his/her career aspiration. The program differs dramatically from traditional education in that students are taken out of the classroom and spend a substantial amount of time in a work environment (or work sites) exploring the world of work.

In order to earn school credits, required for graduation, students develop and complete various academic projects (learning contracts) and are then graded by their advisor (learning coordinator). Students usually spend one year in this program. They work at a work site four days per week. The fifth day is used to update and modify learning contracts. By varying the placements, students have the opportunity to broaden their career perspective.

Students are selected for the program by project staff after voluntary application. Upon entering the program, the student undergoes a one-week orientation. During this week students develop their individual career and academic programs and identify specific career interests which are related to possible work site placements. Basic skills and interests are reviewed and activity sheets are developed to establish individualized learning programs.

Students generally spend four days per week at each placement over a period of two to 13 weeks. One day per week is spent at the learning center working individually with a learning coordinator to update both academic and career programs.

Site development and analysis is a continuous process to ensure that sites will be available to fit the career interests of the participants. Transportation for the participants to the sites is provided by student-owned cars, public transportation, private bus contractors, project staff, and a van purchased by the project. Transportation costs are generally paid by the project.

Each student's program (career and academic) can be updated at any time and is reviewed regularly every nine weeks. Student projects/activity sheets are developed as much as possible around experience site placements and other community resources and carefully evaluated before a final grade and credit is given.

D. Administrative Structure

The Portland Board of Education was the grantee for the project. The Superintendent and Assistant Superintendent of Schools had the primary role in writing the proposal and received assistance from the Appalachian Educational Laboratory and the third-party evaluator. Operationally, the program followed the administrative structure shown in Exhibit 1 on the following page. The management of the project revolved around the project director who reported directly to the Assistant Superintendent of Schools. The school system and the project staff were both sufficiently small to allow for communication from the top to the bottom of the administrative structure. Much of the communication occurred on a one-to-one basis, though a formal staff meeting was held each week for all project staff. Communication with the USOE was good until the last year when the USOE Regional Office was closed. At that point there was little contact until the close of the project.

E. Dissemination Activities

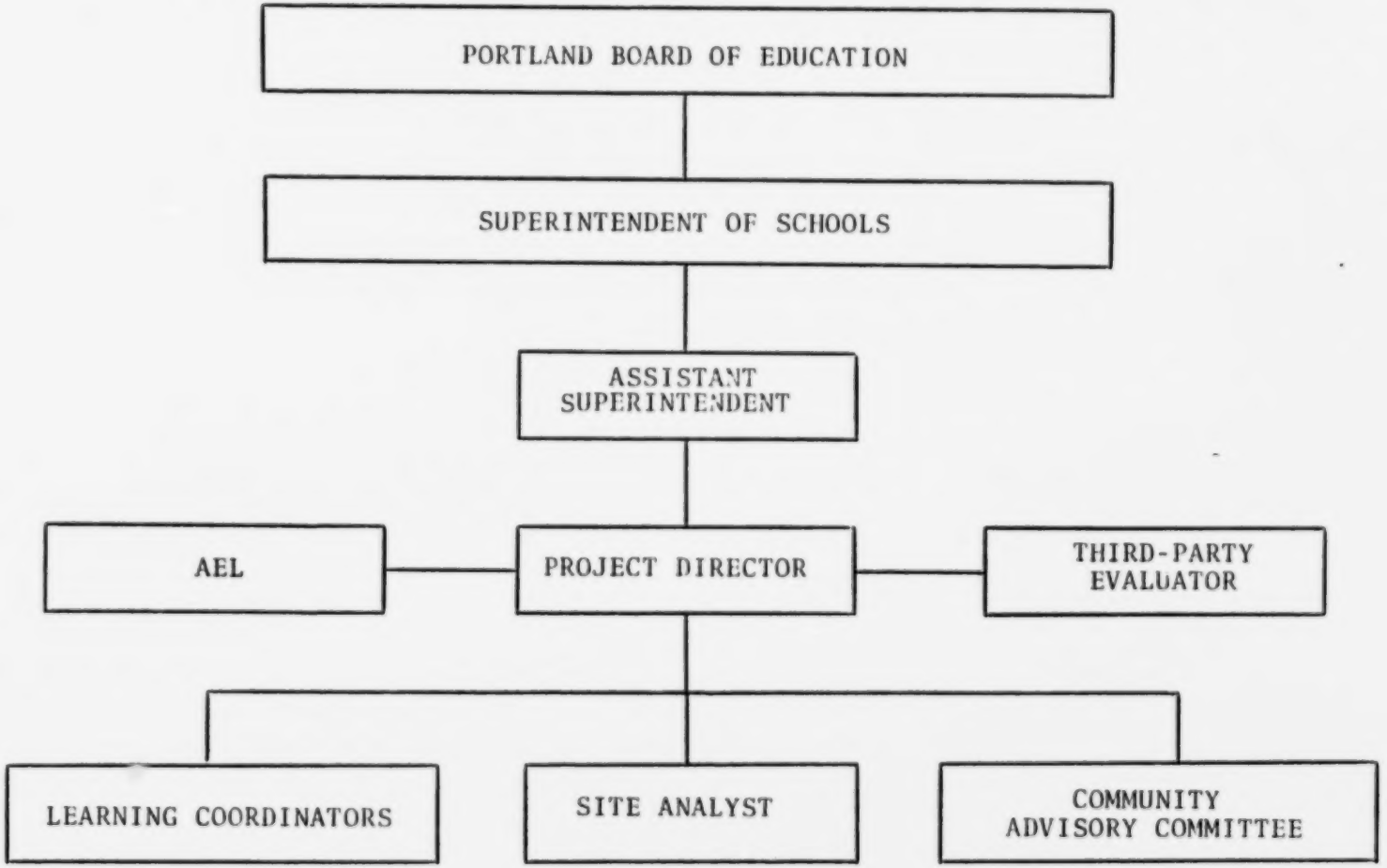
A major objective of the program was to expand its benefits beyond the local community. Specifically, the project staff sought to disseminate information about the EBCE program as an educational alternative for students throughout Connecticut. The dissemination strategy included:

- using the Portland High School as a demonstration center;
- conducting an information outreach and dissemination program; and
- providing materials, training, and technical assistance to interested school systems.

The outreach and dissemination program included two types of presentations. The first was a two-hour awareness presentation in which a 13-minute slide tape show was used which covered highlights of the program. Overhead projector materials were used to illustrate the details of the program. Ample time was allowed for questions from prospective adopters and other interested people. A more detailed presentation was provided for interested teams of staff from school districts. This presentation, given by project staff, was three days in length and covered all of the program components. All of the AEL materials were made available to the participating teams. The presentations were given to a wide variety of groups and organizations, representing educational service areas, college classes, professional groups, service organizations, and local school districts. The training sessions included the following:

EXHIBIT 1

ADMINISTRATIVE STRUCTURE OF THE PORTLAND EBCE PROJECT



- general philosophy and strengths of EBCE;
- description of the target audience;
- program operations and services delivered;
- why EBCE would be a valuable asset;
- staffing requirements, including student staff ratio and qualifications;
- training requirement for staff, teacher and others;
- required facilities;
- required materials; and
- operating and per pupil costs.

F. Adoptions

At present at least three other schools are operating the EBCE program as a result of the project's dissemination effort. One of these programs is in Massachusetts; two are in Connecticut.

Marlborough High School
Marlborough, Massachusetts

This program adopted the entire EBCE model as operated by the Portland High School. The program is funded partially by CETA Title IV, an occupational education grant from the state, and funds from the local school district. The program started in January 1978 and had served 131 children since inception.

The Portland program came to the attention of the director who was originally from Connecticut and knew the Portland staff. He asked for information regarding the program since Marlborough was seeking to develop a career program for unmotivated, emotionally disturbed students, potential or returning dropouts, and students in court custody. Before adoption several models were examined. Each was compared to the wide variety of participants the program was being designed to serve. Based on the needs of the school, staff were convinced the AEL model would be most suitable. The model also was accepted by the professional staff and school administration since the school board had given a mandate to install a career education program in the school.

Initially, the project was fully adopted. However, during the implementation some of the materials had to be simplified to meet the needs of participants.

There is no formal evaluation of this program planned. Program success is determined by the number of students staying in school and graduating, the number of credits earned and the number finding employment after leaving school.

Staff reported that on-site visits to Portland and enthusiasm of the Portland staff facilitated their adoption of the program. An additional adoption in Douglas, Massachusetts is planned for September of 1980.

The Alternate High School Program
Meriden, Connecticut

This is a total adoption except for the transportation component. The program started in September 1977, is funded by the local Board of Education, and serves 30 returned or potential dropout students each year. There are plans to increase the size of the program next year.

Meriden staff became aware of the Portland project through a presentation given by the Portland staff. Meriden High School had been experiencing a rising dropout rate since 1973 and a committee of school staff and community members had been established to set up a program of career exploration. After studying the AEL-EBCE model as demonstrated at Portland High School, they did not investigate any other options. Staff reported that the slide/tape presentation handouts and the technical assistance received from Portland staff were most useful in facilitating the adoption.

The program has an on-going evaluation using the AEL Basic Skills Test comparing results with national norms. Other success measurements include increased attendance, and changes in the attitude of parents and the business community.

The High School in the Community
New Haven, Connecticut

This program provides all EBCE components except transportation to 30 students. Students use public transportation. The project, which started in September 1979, is funded jointly by the Connecticut State Department of Education and the New Haven Board of Education.

Staff became aware of the demonstration model through a dissemination conference given by Portland staff. New Haven had had a career program for ten years. However, they sought to use available funds to concentrate their program.

New Haven has not defined a specific target population. Students apply and are selected by staff. Staff report that additional support is needed in developing worksites relevant to participating students.

There are currently no plans to incorporate the evaluation system or to provide follow-up of students.

II. EVIDENCE OF IMPACT

This section discusses project outcomes in terms of the proposed interim and final acceptable evidence of success.

A. Interim Acceptable Evidence

Interim acceptable evidence is divided into three components: demonstration impact, dissemination activities and efforts toward institutionalization. The standards for each are discussed below in relation to the Portland project.

1. Demonstration Impact

The first component of interim acceptable evidence of project success is evidence of demonstration impact, i.e., the short-term effects on the demonstration project target group. This refers to the immediate impact the demonstration has on its target population. In other words, did the project reach its stated objectives with respect to its target population? The standard to be met for acceptable evidence of demonstration impact is significant intended primary outcomes which can be attributed to the program intervention.

The Portland EBCE project had several student outcome objectives. These objectives were:

- students will increase in basic skill areas, as measured by a standardized test, as much as a comparison group or in terms of normative expectations;
- program participants will increase their knowledge of the world of work, career awareness skills, interests, and aptitudes in relation to careers and will have positive attitudes toward career planning;
- program participants will improve the life skills needed for transition into adulthood and will increase their motivation to learn;
- students will have a positive attitude toward the program and a positive assessment of their progress;

- students will improve their ability to make career decisions; and
- students will be less inclined to drop out of school.

In assessing the extent to which these and other objectives were met, a third-party evaluation was planned and carried out. The evaluation was designed to use comparison groups so that effects could be attributed to the intervention of the project. These comparison groups consisted of:

- students from programs having similar elements;
- traditional students who did not volunteer for EBCE; and
- students who volunteered for EBCE but were not selected due to overabundance of volunteers.

In addition to comparisons with the above groups, it was planned that late entrants to the program would be compared with early entrants.

In actual implementation of the evaluation during the first year of the project, the use of comparison groups was abandoned due to difficulties with random sampling and matching. In addition, some members of the original comparison groups were found to be included in the participant group, while others could not be located or would not cooperate with the testing procedure. Thus, comparison groups were eliminated and staff concentrated on pre- and posttesting and comparisons with test norms. The assessment of student outcomes relative to the proposed objectives during the first and second project years is described below.

In order to measure increase in basic skill areas, the Comprehensive Test of Basic Skills (CTBS) Sub-Test 2 (Reading Comprehension) and Sub-Test 7 (Mathematics Concepts and Applications) were administered to project participants on a pre- and posttest basis. Differences between the pre- and posttests were examined. Results showed that project participants increased their basic skills at a rate equal to or in excess of normative expectations. Thus, the evaluator concluded that the first objective was achieved.

Increase in knowledge of the world of work, career awareness skills, interests, and aptitudes in relation to careers and increase in positive attitude toward career planning was measured by the Career Maturity Inventory (CMI) on project participants on a pre- and posttest basis. This instrument

is composed of an attitude scale and five competency tests. The attitude scale is a measure of the feelings, the subjective reactions, and the dispositions of the individual toward making a career choice and entering the world of work. The competency tests measure self-appraisal, occupational information, goal selection, planning, and problem-solving. Results showed a marked gain in the attitude scale scores from the pre- to the posttest. Slight gains were also reported in the competency tests. The evaluator stated that the attitude scale was the most critical in terms of assessing the achievement of the objective and concluded that the program objective was achieved.

During the second program year, the CMI Attitude Scale was again administered on a pre- and posttest basis to students. In addition, data were obtained from a student self-report questionnaire, a student summary evaluation form, and student and staff interviews. The data showed a significant increase in the Attitude Scale scores between the pre- and posttest. In addition, the other data sources provided positive feedback regarding the program. Thus, the evaluator stated the objective was achieved.

Improvement in life skills needed for transition into adulthood and increase in motivation to learn was assessed by interviews with approximately 50% of the program participants. The interviews determined students' perceptions of the skill increases and identified specific actions and/or decisions, on their part, which reflect skill improvement. Results showed that the majority of interviewees reported that their ability to deal with people outside of a school environment had improved. Their behavior was described as more "responsible," their career plans reflected realistic decision processes, and they recognized needs and benefits associated with furthering their education and training. In addition, the depth of knowledge displayed regarding functions, activities, products/services, and problems associated with experience sites indicated that they were highly motivated to learn. Based on the data collected, the evaluator concluded that the program objective was achieved. Similar results were obtained during the second program year using responses to a self-report questionnaire and interviews with a sample of students and staff.

Students' attitude toward the program and assessment of their progress was investigated with data from student interviews and the self-report questionnaires. Results showed that:

- every student stated that the EBCE program was the best experience of his/her high school career;

- those students leaving the program to return to the regular program stated that they were not doing this because of negative attitudes toward EBCE;
- the students that were graduating all said that they would have returned to the program were it not for graduation;
- all students interviewed said that their academic achievement was in excess of what they thought it would have been had they not enrolled in the program. Similarly, they felt that they worked harder on academics in EBCE than they would have normally; and
- satisfaction with progress in career planning was almost universal.

The evaluator concluded that the program participants have a positive attitude toward the program and a positive assessment of this progress. Thus, the objective was achieved.

To measure improvement in student ability to make career decisions, various sources of student data were examined. Results indicated that:

- some students entered the program with a career goal and refined that goal toward a specific interest;
- some students identified a particular career and have, or will, continue in this area;
- some students have found that a particular, previously held interest that suggested career possibilities was not to their liking; and
- some students returned to the traditional classroom to gain academic skills needed to pursue a particular career area.

The evaluator concluded that these data suggest that the majority of program participants have achieved the objective of improving ability to making area decisions.

School enrollment information was examined to measure decreased inclination to dropout of school. Results showed that only two students dropped out. Thus, the evaluator concluded that the objective was achieved.

Conclusion. The evidence provided for achieving the first student outcome, i.e., increase in basic skills, objective was sufficient in that gains realized through pre- and posttesting were compared to normative expectations. The evidence presented for achieving the other objectives was insufficient in that results cannot be directly attributed to the project intervention. Data are required which not only show change but also allow that change to be attributed to the project. Thus, the standard for acceptable evidence of demonstration impact was met for only one of the primary project objectives.

2. Dissemination Activities

The second component of interim acceptable evidence of project success concerns the quality and the extent of dissemination activities. The standards to be met are:

- dissemination strategies and materials include sufficient coverage and details to facilitate replication; and
- acheivement of dissemination objectives stated in the project plan.

The project had a general goal of dissemination and outreach but did not specify measurable objectives for dissemination activities. Thus, the achievement of an objective could not be measured. However, the project hosted numerous on-site visitors, conducted many workshops throughout the Northeast, and participated in several national and regional conferences. Extensive records of visitors and workship participants have been kept, including names, addresses and telephone numbers of individuals and organizations. In addition, dissemination materials have been discussed in project and evaluation reports. These materials include information on project goals, target audience, program operations, expected effects, staffing requirements including roles of each staff member and student/staff ratios, training requirements for staff, required facilities and materials, and project costs. The adopters who were interviewed all indicated that the Portland staff provided sufficient information to facilitate replication.

Conclusion. Since the project did not have a specific, measurable objective for dissemination activities, no judgement can be made regarding achievement of an objective. However, if an objective had been stated, the records maintained of the activities which were carried out would have provided sufficient evidence to assess achievement of the objective and the standard of acceptable evidence of dissemination activities could have been met.

3. Efforts Toward Institutionalization

The third and final component of interim acceptable evidence of project success concerns institutionalization of the program. The standard for acceptable evidence is the presence of such efforts.

The Portland project was very active in their efforts to ensure program longevity after termination of federal funding. The Superintendent of Schools asked the Board of Education for three and one-half staff positions to maintain the program. This request was documented in the Board's budget planning documents. The Portland Board of Finance in March of 1979 approved the overall school budget which included the maintenance of the project.

Conclusion. Efforts toward institutionalization were made and were documented. The standard of efforts toward institutionalization has been met.

B. Final Acceptable Evidence

Final acceptable evidence has three components: Utilization, Long-term Impact and Continuation/Adoption Impact. Each of these were examined to determine final success of the project. Standards for each component are discussed below.

1. Utilization

The first component of final acceptable evidence of project impact is utilization and spread. The standard to be met is that the program is being continued at the original site and/or has been adopted by others.

The Portland project is being continued using local funding, although there has been a cutback of staffing level. There are presently three and one-half full-time equivalent learning coordinators (reduced from five) serving 67 students. The program is being implemented in at least three other school districts: Malborough, Massachusetts; New Haven, Connecticut; and Meriden, Connecticut.

Conclusion. The standard for acceptable evidence of utilization has been met.

2. Long-Term Impact

The second component of final acceptable evidence of project impact regards the extent of long-term effects on the demonstration project target population. The standard for acceptable evidence is the presence of significant intended

effects which can be attributed to the intervention of the program. To assess achievement of this standard, follow-up measures of program effects must be collected. The Portland project is beginning to plan for a survey of former project participants in the spring of 1980. This effort would be part of a follow-up of all recent graduates of the high school. Data to be collected will include demographic information, employment history, perceived strengths and weaknesses of the program, and most beneficial and least beneficial courses and experiences. The project has kept records of names and addresses of former participants, thus making follow-up a feasible undertaking.

Conclusion. Since funds for the demonstration project terminated in September 1979, any follow-up will have to be undertaken using local funding. However, if plans are implemented as discussed, resultant data should provide evidence of long-term impact.

3. Continuation/Adoption Impact

Evidence under this heading refers to the extent of short-term effects on target group(s) from continuing and adopting sites. The standard to be met for acceptable evidence of project impact are significant intended primary outcomes which can be attributed to the program intervention. Evidence of continuation/adoption impact is similar to demonstration impact evidence, answering the question of whether similar effects are being found as the project is continued at the demonstration site and adopted at others. Answers to this question should be available within two years following the termination of the demonstration grant.

If the Portland project continues to collect the same data as during the demonstration period, acceptable evidence of continuation impact in terms of the student objectives would be available only for the one objective that met criteria for demonstration impact. Regarding adoption impact, the three adopters who were identified did not uniformly adopt the evaluation strategy. To really assess whether the program at an adopting site is having a similar effort as at the demonstration, the program should be adopted in full and the evaluated plan should be similar to the one implemented at the demonstration site.

Conclusion. To be able to provide acceptable evidence of continuation/adoption impact, the funding agency should provide funds to facilitate evaluation at a small number of adopting sites.

III. CONTRIBUTIONS TO PROJECT SUCCESS AND IMPROVED IMPACT

This section reviews roles and accomplishments during the pre-grant, grant and post-grant periods.

A. Pre-Grant Period

After attending a presentation of the AEL-EBCE model, the Superintendent of Portland schools decided to develop a similar program in his system. Two staff members were sent to the AEL in Charleston, West Virginia for training. Some time later the actual development of the proposal began. The district applied for and received a small planning grant from USOE which helped in the development of the proposal. This grant provided support for attending workshops explaining the various EBCE models and receiving training in the AEL-EBCE model. It also allowed time for project planning and startup. The grant and the planning it allowed was felt to be key to the success of the project.

According to Portland administrative and project staff, there were many factors which led to the development of a successful proposal and then to a successful project. These factors included:

- merit of the AEL-EBCE model;
- committment of the Superintendent and the Board of Education;
- identification of a project director with management capabilities;
- identification of key project staff before proposal development began and their committment to producing a quality product;
- identification of potential worksites and community resources;
- quality of assistance from the AEL consultants and the adaptability of the AEL materials;
- conduct of a needs assessement;
- specification of required project activities and development of time lines for these activities;
- appointment of an advisory committee of community leaders to help convince the community of the merits

- of the program and gain access to additional resources; and
- specification of objectives and expected outcomes in the proposal.

B. Grant Period

Contributions to project success during the implementation phase included writing and adjusting student impact objectives, making adjustments in staffing, receiving assistance from USOE and AEL staff, having quality project staff, providing staff training and receiving support from the entire school system. Support for the project from the school administrative and professional staff is seen to be essential.

The project staff indicated that the impact of the project could have been improved if they had taken more time for orientation of the school staff and less time in information dissemination directed at community service clubs.

1. Evaluation

The Portland School System hired a third-party evaluator to evaluate the project. The evaluation included both process and impact evaluation. The process evaluation assessed each objective to determine if it had been completed as stated in the proposal. The third-party evaluator provided assistance to the project on an on-going basis. Since he was able to be more objective than the project staff, he was able to make many suggestions for improvement. No major constraints to evaluation were noted.

When the project was initiated, there was an attempt to use comparison groups of students as part of the impact evaluation in order to be able to attribute change to the project intervention. A pre- and posttest, both on career knowledge and attitudes, and in academic achievement, was to be given to the participant and the comparison groups. However, after a short period of time, it was discovered that the use of comparison groups was unmanageable. With the consent of USOE, the use of comparison groups was eliminated and evaluation proceeded using a pre- and posttesting methodology.

2. Demonstration/Dissemination

Dissemination, one of the major goals of the program, was taken as a serious responsibility. Dissemination efforts began soon after the program began. Dissemination consisted of making presentations to groups of educators both within

Connecticut and in surrounding states. One of the major factors for success in this component was that dissemination was included as a goal in the proposal and activities were specified to accomplish it. Another contributing factor to the success of the dissemination component was the support and willingness of the superintendent to allow staff time to make the presentation.

Dissemination presentations included an overview of the program utilizing a slide/tape show developed to initiate interest in the EBCE model. A more detailed training session of two or three days, was given as a follow-up to interested districts upon request. The development and use of the slide/tape show and the utilization of the overhead projector was a very useful technique. These materials made presentations more uniform and required less staff preparation.

An important consideration in an effective dissemination presentation is the composition of groups to which the presentation is presented. Decision-makers must be included in these groups if it is to be adopted.

C. Post-Grant Period

After the federal funding period ended, the Board of Education approved a limited continuation of dissemination as staff time permits. Where travel out of the areas is involved, expenses are paid by the requesting district, and materials are provided on a cost-sharing basis.

IV. ALTERNATIVE TIMING OPTIONS

The staff of the project felt that the three-year funding period was adequate to demonstrate the program since the model was already developed. Any reduction of the three-year cycle would reduce the effects of the project, especially of the dissemination and evaluation efforts.

Recommendations were made for three years of full funding with two years of reduced funding to make the transition to local support easier. The last two-year period could be used for evaluation and student follow-up. The funding level for the fourth year could be reduced to 66%; a level of 33% was recommended for the fifth and final year.

The grantee received a planning grant which was seen to greatly enhance the proposal development and pre-grant planning process. Staff recommended that the funding of a planning grant be continued.

EXPERIENCE-BASED CAREER EDUCATION (EBCE) IN COOPERATIVE VOCATIONAL EDUCATION AND WORK EXPERIENCE

Norman, Oklahoma

I. PROJECT DESCRIPTION

Moore-Norman Area Vocational Technical School (MNVT) implemented this project during the three-year period between September 1, 1976 and August 31, 1979 for approximately $471,908. Like the preceding case study of Portland, Connecticut, Moore-Norman EBCE implemented the Appalachian Education Laboratory EBCE model. This Project provided for the expansion and improvement of the cooperative education and/or work experience program; activities for the elimination of sex bias and sex role stereotyping; sex-fair guidance, placement and follow-up; and a third-party evaluation.

A. Target Area and Target Population

MNVT serves the school districts of both Moore and Norman, Oklahoma. The populations of these districts were the primary source of students for the EBCE program, though some participants were referred from CETA and other manpower programs.

The participating schools are located on the outskirts of Oklahoma City, the capital city, which is a booming industrial, agribusiness, military, government agency, commercial center, and an area attracting a large number of new industries. The accompanying increase in population is spilling over to the Moore-Norman School Districts with a resulting housing boom within the school district boundaries.

The school districts' population is largely made up of middle income families. Unemployment is relatively low in comparison with the national norm. Cleveland County, in which the participating school districts are located, has a population of 96.9% white, .6% Black, .4% Spanish surname, 1.9% Native American, and .2% Oriental. The EBCE enrollment reflects a fair cross-section of the community: 30 white, 2 Native American, and 4 other.

The Moore School District serves a population of approximately 13,000 students. The Norman School District, in a more urban area, serves approximately 9,000 students. The target population of the Moore-Norman EBCE program was secondary students

including juniors and seniors, post-secondary students and 16-21 year old out-of-school youth. This project was specifically designed to meet the needs of students who may:

- have trouble finding work after leaving school;
- have predispositions and expectations which give them a disadvantage in dealing with the demands of the local labor market;
- have socio-economic, academic, and/or stereotype handicaps which might affect their career aspirations and opportunities;
- be on the verge of dropping out of school because of lack of a motivating program; and
- want to link up career exploration experiences with their academic and cooperative educational experiences.

B. Goals and Objectives

The Moore-Norman EBCE program patterned its instructional strategies, methods and techniques after those developed by the Appalachian Educational Laboratory (AEL). This model featured work and non-paid exploration experiences. The major objective of the project was to provide students with access to programs which prepare them to enter the world of work by focusing on the development of new career exploration and cooperative education experiences as well as expansion of on-going programs. The use of the AEL model enabled Moore-Norman to provide an individualized and personal career exploration program for students enrolled in the regular high schools and students in Cooperative Education Programs.

The purpose of this project was to provide a cooperative program in areas not offered by Moore-Norman Area Vocational-Technical School and to provide non-paid exploration experiences.

As stated in the proposal, the long-range goals of the program were:

- to create bridges between school and earning a living for young people who are still in school, who have left school by graduation or dropping out, or who are in post-secondary programs of vocational education;
- to broaden occupational aspirations and opportunities for youths with special emphasis to youths who have academic, socio-economic, and other handicaps;

- to reduce youth unemployment;
- to reduce dropout rate of secondary students; and
- to promote cooperation between public education and manpower agencies.

Specific strategies were identified to meet these long-range goals. These strategies, which are described as general program objectives, are:

- to initially include 40 youths from the Moore-Norman Area Vocational Technical School District #17 who desire experienced-based career education and to expand this number each year with a goal of 150 youths in the program by the third year of operation;
- to place each individual under the supervision of a learning coordinator based at the Moore-Norman Area Vocational-Technical School. This individual will help identify the goals, interests, abilities, needs, and values of the participants in order to place them at appropriate experience sites;
- to award credit toward graduation to students involved in the experience-based career education program for each semester of time spent at the work site and with the learning coordinator;
- to develop the capability of training staff of other school districts in techniques for developing an experience-based career education program and for improving existing cooperative programs;
- to enlist and analyze a cadre of experience sites in the community; and
- to organize an EBCE advisory council for support and advice.

Anticipated student outcome objectives given in the proposal include the following:

- students will explore at least two experience sites during each program year;
- students will have increased career awareness as measured by the Career Maturity Inventory;
- students will have hands-on experience in the community;

- students will do as well as or better than the comparison groups on the Comprehensive Tests of Basic Skills;
- students will have increased self-awareness as measured by the Career Maturity Inventory; and
- students will exhibit fewer personal sex biases after observing men and women in non-traditional job roles and participating in seminars and counseling sessions.

C. Project Activities

The Moore-Norman EBCE program was student centered, providing a personalized learning experience for each student. Students followed individual learning plans which they developed co-operatively with the learning coordinator. The focus of student learning activities was in the cooperative education sites in the community. Sites ranged from small independent businesses to large organizations such as Westinghouse Electric Company, Dayton Tire and Rubber, and Tinker Air Force Base. The resource persons or host employers at the site participated in the students learning experiences and graded the students.

Activities of the three major project components were defined in the final report. First, the site analysis technique was followed which required the establishment of an advisory council specifically for the EBCE project and the enlistment of a representative cadre of cooperating experience sites. Analysis of each site led to the development of Experience Site Learning Guide.

Secondly, the project followed AEL/EBCE employer orientation and recruitment techniques. The activities involved in this component were liaison with the site administration personnel, orientation of employees with whom students were placed (resource persons) before their job was analyzed, the development of explanatory and guide materials and the conduct of formal individualized orientation and awareness session for cooperating sites and personnel. These sessions focused on three areas. One area was an in-depth explanation of how the program worked. A second area included strategies to encourage individuals, both male and female, to enter non-traditional work roles. A third area was to gather feedback from the experience sites and the resource persons regarding the on-going operation of the EBCE Program.

The final component was the development of individual student learning plans with behaviorally stated objectives. The plan included a work schedule encompassing specific types of work activities. Both group and individual conferences were held regarding these plans.

The basic structure of the program allowed students to spend a total of 15 hours per week in career exploration. In addition to the actual work experience, they also participated in small group and individual student counseling sessions. Thus, they spent 12 hours a week exploring at the work site and three hours a week at Moore-Norman in counseling sessions and appointments with the learning coordinator.

As appropriate, students focused on exploratory experiences, the development of entry-level job skills, or on fulfilling requirements which would enable them to pursue a career which required a post-secondary education.

The AEL/EBCE model provided procedures and material for integrating academic learning with career exploration. However, the EBCE program as implemented by Moore-Norman was not directly related to an academic program. Instead an informal coordination was developed between the EBCE program and the students other course work. Students participating in EBCE at Moore-Norman received three hours of credit for the on-site career exploration.

D. Administrative Structure

The internal organization of the Moore-Norman/EBCE project, Exhibit 2, included an administrative staff consisting of a part-time program director and a full-time coordinator of operations, and a professional staff which consisted of two full-time learning coordinators, a site analyst, and a counselor.

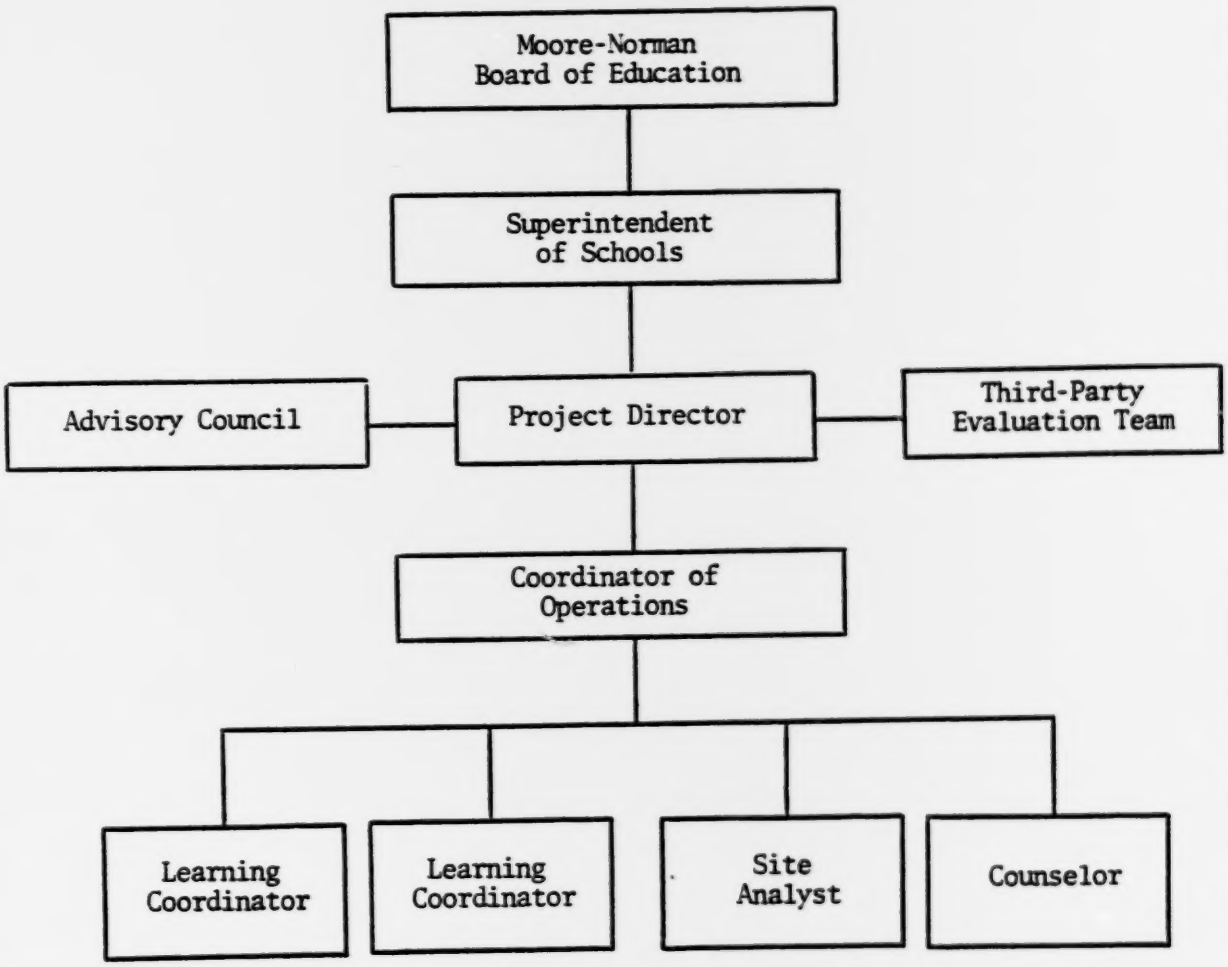
The program director was responsible to the Superintendent for overseeing and managing the implementation process. He prepared reports, coordinated presentations to internal and external groups and provided liaison to the third-party evaluator.

The coordinator of operations had direct responsibility for start-up activities and for operation of the program according to plan. The coordinator provided liaison with school principals and directed the learning coordinators, site analyst, and counselor.

The two learning coordinators were certified teachers who were responsible for delivering the EBCE program to the students. During the start-up, they also participated in site analysis, student recruitment, and other preparatory activities. Learning coordinators analyzed student interests and provided appropriate experience sites, monitored student progress, maintained liaison with the community, and ensured that each student experienced a variety of placements during the school year.

EXHIBIT 2

ADMINISTRATIVE STRUCTURE OF THE
MOORE-NORMAN EBCE PROJECT



The site analyst was responsible for developing and maintaining sites, site analyses, and for production of the Experience Site Learning Guide. The site analyst determined the learning potential of sites; identified resources, activities and personnel to provide relevant learning experiences; established communication links between employers and resource persons, learning coordinators and students; and involved employers and employees in determining and establishing student "hands on" learning experiences.

The counselor was hired on a full-time basis for ten months. This individual was responsible for working with individuals and groups concerning the EBCE program.

An advisory council, a third-party evaluation team, USOE and the Oklahoma State Department of Vocational Education also provided input into the EBCE program.

Members of the advisory council consisted of business and community leaders, resource people, parents and students, a representative of the State Department of Vocational Education and representatives from public and private institutions. The advisory council met approximately four times the first year and two times in subsequent years, and proved to be an effective mechanism for involving the community in the EBCE program.

The third-party evaluation team was from a teacher training institution and was responsible for reviewing and analyzing all program data. The results of this evaluation effort were submitted in quarterly reports to the project director at Moore-Norman. Since the Moore-Norman/EBCE project was funded and administered directly by the USOE, all quarterly, final and other project reports went to USOE.

The Oklahoma State Department of Vocational Education had a minimal role in the administration of the project since EBCE was generally perceived to be outside of the state's educational plan. However, the state did approve the awarding of credit to participating students and provided advice and technical assistance on an as needed basis.

E. Dissemination Activities

Though a plan for disseminating the program was not included in the original proposal, informal dissemination activities such as presentations at meetings, newsletters, and articles were undertaken. Moreover, since the project was a demonstration, it was always open to visitors.

A dissemination proposal was submitted to USOE for additional funding during the third year of the project and funding was subsequently granted. The activities carried out under this grant are described in Section III of this case study.

F. Adoptions

At present, there are no adopters of the complete Moore-Norman/EBCE model. Some schools, related organizations and private institutions have adopted several of the components. For example, materials are being used to supplement regular classroom activities. However, no one has adopted the entire program.

II. EVIDENCE OF IMPACT

Validation of the evidence of impact as outlined in the monograph was accomplished by comparing the EBCE evaluation with the criteria, standards and documentation requirements specified in the interim and final acceptable evidence discussed previously (See Portland, Connecticut Case Study).

A. Interim Acceptable Evidence

Application of interim acceptable evidence produced mixed results and is reviewed below.

1. Demonstration Impact

Though demonstration impact as measured by the third-party evaluators was not articulated as an objective of the project, the Career Maturity Inventory (CMI) and Rotter's Internal-External Locus of Control Scale were administered to measure learner outcomes. Seventy-one (71) EBCE and thirty-five (35) comparison students were given a pre- and posttest. These measures were analyzed separately by first computing pre/post gain scores for each student and testing for differences in the mean gain score achieved by the EBCE and comparison groups using a two independent sample t-test. The data were further analyzed using a 2 (EBCE vs. Comparison) x 2 (pre vs. post) ANOVA.

The findings indicated that project participants had made statistically significant gains that could be attributed to the program on the following scales: CMI-Knowing about Jobs Sub Scale, CMI-Choosing a Job Sub Scale, and CMI-Looking Ahead Sub Scale. No significant differences were found between project participants and controls on the following scales: Rotters I-E Locus of Control Scale, CMI-General Knowledge Sub Scale, CMI-Knowing Yourself Sub Scale, and CMI-What Should They Do Sub Scale.

Computerized records are kept of all vocational education students for five year follow-up.

Conclusion. Standards for demonstration impact, i.e., significant intended primary outcomes, were partially met. The findings were mixed in that some of the expected outcomes were significant while others were not.

2. Dissemination Activities

A dissemination proposal was submitted separately and was funded the third year of the three-year demonstration effort. Dissemination objectives were stated in this proposal and the achievement of those objectives by dissemination activities was assessed by the third-party evaluators. Dissemination activities were extensive; all dissemination objectives were met.

The following information was included in the dissemination material: project objectives; description of the target audience; program operations and services delivered; expected project effects; and required materials.

Records were kept of all dissemination activities and recipients of program materials to facilitate follow-up, if necessary.

Conclusion. Since the dissemination project achieved all proposed objectives and dissemination materials contained adequate information for replication, standards for dissemination activities were met.

3. Efforts Toward Institutionalization

Efforts toward institutionalization took place in earnest during the last year of the project when the State Department of Vocational Education and the Board of Moore-Norman Voational-Technical School (MNVT) were approached for funding. At the beginning of the third year of the project, MNVT asked the state how it could continue and expand the program. In response, the State Director of Vocational Education established a committee to consider the project. The State RCU Director was chairman of the state committee. Prior to chairing this committee, the RCU Director was on the advisory board of the project and thus had first-hand knowledge of the project. The state committee agreed the project was worthwhile, but was concerned about limited funds.

The local and state negotiations resulted in the continuation of the program at a reduced level. Two learning coordinators carry a workload of 35 students each (an increase from the original 15/1 student/teacher ratio) and the counseling component was dropped. The program, being funded 50% by the state and 50% by the area school district, expects to continue.

Conclusion. Efforts were made during the last year of the project to obtain additional funding from the LEA and the SEA, thus standard for efforts toward institutionalization has been achieved.

B. Final Acceptable Evidence

Application of the final acceptable evidence to the EBCE program produced the finding that the program failed to meet the three criteria.

1. Utilization

The program is being continued though at a reduced level. It was not fully adopted in any site though four organizations adapted components. The lack of any full adoption to date could be attributed to one of the following facts:

- there has been inadequate time since the termination of dissemination activities two months ago to determine level of adoption;
- the program was disseminated as adaptable components rather than a total package;
- the State Department of Vocational Education is not committed to the EBCE concept due to other priorities; and
- the state does not have an active director of career education.

Conclusion. This project has not met the standard for utilization since it is not being fully continued or adopted.

2. Long-Term Impact

Records of all vocational education students are kept for five-year follow-up. The follow-up strategy consists of undertaking telephone interviews with a sample of vocational education students each year to determine if they are using any of the training they received in school.

As yet, there are no plans for independent follow-up of the EBCE students.

Conclusion. The standards set forth for assessing Long-Term Impact have not been met by this project. Indications are that an appropriate evaluation could be done, i.e., providing follow-up evidence of significant intended project effects within two years of intervention.

3. Continuation/Adoption Impact

There are no plans to evaluate the short-term effects of the EBCE program as it is being continued or as it has been adopted. The staff feels that the project has proven itself and there is no need to continually evaluate it since this is a time-consuming and expensive process. However, the dissemination literature encourages potentially adopting sites to collect impact data and make it available to USOE, or its designated representatives, upon request. To encourage this, MNVT offers free technical assistance for anyone who agrees to collect these data.

Conclusion. Standards for continuation/adoption impact have not been met by presenting evidence of significant intended project effects.

III. CONTRIBUTIONS TO PROJECT SUCCESS

This section reviews roles and accomplishments during pre-grant, grant and post-grant periods that contributed to project success.

A. Pre-Grant Period

Moore-Norman received a planning grant of $5,000 from USOE to be used toward the development of the proposal. According to the project director, who wrote the proposal, these funds contributed significantly to the success of the project because they provided an opportunity for more planning than would otherwise have been possible. This planning was reflected in the proposal. The end result was that the project could be implemented very much as it was outlined in the proposal.

Several planning grants were awarded across the nation. Recipients of the planning grants were invited to a conference in Reno where variations of the EBCE model were presented. The three recipients from Oklahoma, including the proposal writer from Moore-Norman, attended the conference. In addition to attending the conference, technical assistance was obtained from AEL on its EBCE model.

The role of the State Department of Vocational Education in the development, implementation, and dissemination of the project is another factor that influenced the outcome of the project. In Oklahoma, the State Department of Education is separate from the State Department of Vocational Education. The State Department of Education gives credit for academic subjects while the State Department of Vocational Education gives credit for vocational education. Thus, Moore-Norman had to modify the AEL/EBCE model by eliminating the components which required formal ties to academic subjects and make it an almost "straight" vocational education project, in order to fit the state plan.

The State RCU Director assisted all three proposal writers who had received USOE planning grants in relating their ideas to the state plan. However, it was the responsibility of each local applicant to decide how to best fit EBCE to the state plan.

The Oklahoma state vocational education plan does not provide for EBCE. However, it does include related kinds of programs, such as cooperative education which is experienced-based but not exploratory. To be completely compatible with the state plan, EBCE has to be modified to the extent that it loses its basic characteristics. The Moore-Norman proposal attempted to modify EBCE to fit the state plan without destroying its basic purpose. The state approved the proposal for submission to USOE because it did not conflict with the state plan. But, the state considered EBCE a non-priority item outside the state plan.

B. Grant Period

The official grant period was between September 1, 1976 and August 31, 1979. However, Moore-Norman was not actually notified of the award until September 15, 1976. Staff were hired by October 1, though there were problems in getting staff out of contracts after July. The first students were taken in January.

Of the many factors which contributed to the success of the project, several were cited by the staff of Moore-Norman as having a major impact upon it. Those mentioned were:

1. Clearly defined objectives. Project objectives were clearly specified in the proposal allowing all staff to be aware of project requirements.

2. Efficient and effective management. The project was well-organized and managed throughout. The planning that went into the proposal was reflected in the actual implementation of the project.

3. Well-qualified and dedicated staff. Staffing was seen as a number one priority. The skills of the various members of the staff complemented one another. Staff worked well together, were student-oriented and dedicated to the success of the program. Staff had the ability to meet a variety of business people and convince them that the program was a viable one. This ability is evidenced by the fact that in the last year of federal funding, staff had developed 140 work experience sites and identified 340 resource people.

4. Appropriate time schedule. Timelines were included in the proposal which provided a workable framework for project operation. Having a semester before taking students, allowed lead time for hiring and training staff, selecting a third-party evaluator, selecting experience sites, training resource people, recruiting students, and other start-up activities.

5. Support from the host institution. Moore-Norman Area Vocational-Technical School, the grantee, provided a very supportive setting for the project. In comparison, the project received less active support from the Moore and Norman LEAs and the SEA.

6. Support from the community. The project received the enthusiastic support and cooperation of many business and industry people in the community. The selection and cooperation of resource people is crucial for a program of this kind. Though most of them were very good, some resource people would not properly complete forms or keep in contact with the student while he/she was on site.

7. Good facilities. The facilities were comfortable, easily accessible, and roomy.

8. Good counseling. The students were provided good individual and group counseling. The group counseling was especially beneficial to students because it provided an open forum where they could share and learn from each other's experiences.

9. Student oriented staff. The program, serving a wide variety of students, was well-organized ensuring that the students knew what was expected of them. The students who participated in the program were involved with each other socially as well. They had picnics, parties, and social activities. Another strength was that site descriptions were written with student input. The project would have benefited if the original student-teacher ratio of 15-1 could have been maintained. The ratio was changed to 30-1 to prepare for continuation with local funds at which time the ratio would be 35-1.

Though the actual implementation of the project did not vary significantly from the plan originally proposed, some minor changes were made. In the staff schedule, the coordinator of operations during the first two years also served as a half time learning coordinator. During the third year, the coordinator of operations became the full time coordinator of dissemination.

The procedures and activities of the project were also modified. Originally, visits to the work sites were made on a weekly basis but later they were reduced to a visit every other week. The recordkeeping system as developed by AEL was consolidated into a centralized and standardized filing system for documentation of the student's program.

Finally, USOE requested an expanded dissemination plan, discussed under "Demonstration/Dissemination".

Evaluation

The third-party evaluators played an important role in the success of the project. The evaluators consisted of a team of five professionals from Central State University, a local teacher training institution. They represented the following areas: psychology, guidance and counseling, secondary education, and vocational education. Different team members evaluated different components of the project depending on their expertise. They completed formative and summative evaluations. A member of the evaluation team visited project sites every two weeks. Input was provided to the project director through quarterly reports and informal suggestions.

The evaluators contributed to the project by monitoring the project throughout and providing continual feedback. They designed research formats and instrumentation, organized the data, studied the effects of the project on students, monitored the project for sex bias, and provided input into dissemination. In addition, they worked closely with the counseling program. By being on-site, they served as public relations people especially when talking to resource people.

Though there was no major constraint on the evaluators, a more effective evaluation could have been accomplished with additional time and funds. Evaluators became involved in November and the first students were taken in January. Permission for testing both project participants and controls were required from the district, the school, the students, and the parents. Evaluators felt they could have used more time for the selection of comparison groups.

The evaluators reported that with additional funds they would have done case studies. These studies would have provided both qualitative and quantitative data, and allowed for more effective evaluation of the effects of the three project components. They also could have quantitatively evaluated the interrelationships of staff members and the interrelationships of staff with students.

Demonstration/Dissemination

The project was open for demonstration during the last year. Formal dissemination activities were undertaken as of September 1, 1978, the third and final year of the project, when Moore-Norman/EBCE was awarded $23,000 in federal funds specifically for dissemination. An EBCE staff member was designated as coordinator for dissemination. The coordinator of dissemination attended a conference on "How to Disseminate" put on by NDN in Arlington, Virginia.

The objectives and activities of the dissemination plan were:

- to disseminate information regarding the EBCE concept and demonstration project to educational personnel and related agencies and the business community in the state of Oklahoma;
- to promote the project through the National Alliance of Businessmen with the assistance of a member of the advisory committee;
- to contact each school district in the state of Oklahoma that has the potential or had indicated an interest in the establishment of an EBCE program;
- to train a cadre of presentors from at least five institutions of higher education, the State Department of Education, and State Department of Vocational-Technical Education in the concepts of various EBCE models.
- to provide potential adopters with orientation concerning the EBCE models, and to assist them in arranging on-site observations either at Moore-Norman or other demonstration sites;
- to provide training and technical assistance to schools wanting to implement an EBCE program;
- to reproduce and package materials developed by the Moore-Norman Project to assist adopting/adapting sites in the implementation of EBCE program; and

- to develop guidelines and procedures for follow-up from sites that implement EBCE projects and to help them in finding funding sources.

Supplemental activities included:

- a workshop at Central State University from July 7-13, 1979 for potential teachers of vocational education sources;
- technical assistance to Metroplex Fraternal Order of Police which was working with the Star-Spencer High School of Oklahoma City; and
- attendance at American Vocational Association meeting in Omaha, Nebraska in June 1979.

In summary, the staff of Moore-Norman/EBCE conducted a variety of workshops for state educators, cooperative education teachers and teachers from other disciplines in which specific operational procedures of EBCE were explained. The staff of Moore-Norman/EBCE also provided technical assistance and instruction to cooperative education programs in utilization of the material and components of EBCE.

In general, the dissemination materials included specific objectives which could be achieved by the project, a description of the target audience (the total range of students who could be served by the project), procedures for implementing the program, the expected effects of the project and necessary materials for implementing such an EBCE project.

The strategy identified as being most effective in influencing potential adopters were letters from the Superintendent of Instruction inviting administrators and educators to a conference. Also noted as an effective approach were those presentations at which the students and host employers participated in the program.

C. Post-Grant Period

The project is continuing on a limited basis in the host site. The staff now consists of two learning coordinators. The Coordinators, working with approximately 35 students each, are responsible for counseling students and placing them in work experience sites. In addition, students presently receive two rather than the previous three hours of credit for career exploration. The staff of Moore-Norman had planned for institutionalization in hopes of setting up a system whereby the federal funds were phased out, and state and local funds were phased in. Since EBCE is not in the state plan,

a committee at the state level was set up to discuss and explore possible methods for obtaining funds to continue EBCE at Moore-Norman. The final result was the MNVT Board and the state decided to fund the program on a 50/50 matching basis for one year. To make the program compatible with state plans, the focus has been on placing students in cooperative education programs after their exploratory work experience. The staff of Moore-Norman has also made itself available to assist existing cooperative education programs in utilizing materials and techniques developed in the EBCE programs. This project provided an important first step in Oklahoma as it "opens the door" for other cooperative education programs to incorporate elements of EBCE in their programs.

IV. ALTERNATIVE TIMING OPTIONS

Staff received a planning grant which greatly increased the efficiency of project planning. Concurring with staff from the Portland project, the Moore-Norman staff recommended the continuation and expansion of this practice. Staff also recommended a funding alternative which would allow for phasing in local and/or state funds as federal funds are phased out.

A five-year cycle was considered by staff to be the optimum project length. The first three years were seen as necessary for organizing and successfully implementing the program. During years four and five phasing in of local/state funds would begin as federal funds are reduced and dissemination activities are increased. At this time, demonstration site personnel would be available to provide technical assistance to adopting sites. They would also conduct follow-up of original students participating in the program. Under the current funding cycle, it was noted, that during the third year, the staff spends much of their time looking for jobs.

WAYNE DESIGN FOR CAREER EDUCATION

. Wayne, New Jersey

I. PROJECT DESCRIPTION

The purpose of this project was to implement and demonstrate a career education program at the elementary, junior high and senior high school levels in the Wayne, New Jersey, Public School District. The project was funded directly by USOE for three years from July, 1975 to June, 1978. The total amount of federal funding to the grantee, the Wayne Board of Education, was approximately $560,000.

A. Target Area and Target Population

Wayne Township in Passaic County is an area of approximately 27 square miles located 20 miles west of New York City. It has a population of about 65,000. Thirty-seven percent (37%) of the wage earners work within the township; others travel to surrounding areas and into New York City. Wayne Township has a diversified industrial base. Several national corporations are headquartered there, including American Cyanamid, Union Camp Paper Corporation, and Chemway. The area is served by several major highways, and bus and rail service is available to the larger population centers.

The schools are operated by a publicly elected board of education and serve approximately 10,000 students in nine elementary, three middle and two senior high schools. The professional staff totals about 550.

The project target population consists of all of the students in the school system. At this time, this population is almost totally Caucasian and upper middle class. About 75% of high school graduates go on to further education.

B. Goals and Objectives

When the project was initiated it had 25 goals that were to be used as project tasks. Later, the Advisory Task Force reduced this number to 20 in order to facilitate management. The following 20 goals became the operational mandate for the project:

- to establish an ad hoc Advisory Committee to plan the introduction and implementation of Wayne career education program and to assist with the selection of project personnel;

- to establish a Career Education Task Force which will provide leadership, direction, and support to the Wayne career education project;
- to provide orientation to the key staff so that they become knowledgeable and capable of playing an active role in the development and implementation of project goals;
- to conduct intensive workshops and inservice training aimed at preparing personnel to implement pertinent goals as they relate to the guidance, articulation, and occupational clusters within their respective curriculum areas;
- to establish a program of curriculum, research, and development focusing on the needs of Wayne school personnel and to strengthen liaison between Wayne and other school districts throughout the state and nation;
- to develop and implement curriculum activities and field experience for a coordinated program of the cluster concept for occupational preparation in at least five cluster areas, and articulate with career awareness and exploration efforts in feeder schools at the elementary and middle school levels;
- to design and implement an integrated school/industry/labor/business/community relations service;
- to design and implement media production and utilization services focusing on complementing the curriculum through sight and sound experiences;
- to place strong emphasis on guidance and counseling in grades 7 through post high school;
- to develop and implement job placement services operating in cooperation with other job placement programs aimed at placement of non-goal oriented students, potential dropouts, and out-of-school youth;
- to provide a facility and services to access computerized information, career information and media, student assessment services and "next-step" educational and employment options;
- to develop and implement articulation process model(s) keyed to the needs of students as follows: elementary to middle school, middle school to high school/vocational-technical high school, high school to employment and/or further education;

- to institute a career education administrative and staff organization system to develop, implement, monitor, evaluate and update a comprehensive career education project, K-adult;
- to establish procedures for fiscal management in compliance with state and federal guidelines;
- to respond to the inservice training needs of career education personnel through the development of a district based program offering hands-on experience at both pre-service and inservice levels;
- to relate the Wayne career education project to the county and state plans;
- to establish and maintain cooperative working relationships between public and non-profit private schools;
- to design and implement a process of ongoing staff evaluation;
- to utilize the services of a third-party evaluator to assess project effectiveness in attaining process and product objectives; and
- to organize and designate specific district resources for the planning, development and implementation of career education as an integral facet of basic education in the Wayne school system, supported by recommendations resulting from project evaluation.

C. Project Activities

The project had several main activities which were to lead to the infusion of career-related education into all of the Wayne classrooms. The program was divided into an awareness program at the elementary level; an exploratory program at the middle school level; and an occupational preparation program at the secondary level. Initial work focused on providing intensive training in curriculum development and techniques of using career-related materials to classroom teachers, guidance personnel, and administrators in the early part of the program. After this group training, project staff provided assistance to individuals or small groups in curriculum development related material and to teachers for use in their instructional programs. To support these efforts, the guidance programs were enlarged to include more career-related material that would help students make better decisions regarding further education or a vocation.

A career resource center was established in each of the two high schools that put computer technology within the grasp of each student. In these centers, students can obtain profiles of themselves based on information they supply. In addition, information is available on occupational requirements, college admission, and general directions on obtaining more information on additional services.

The project also had a job placement service which was designed to help the non-goal oriented student. It worked with potential dropouts and others who had already left school. The service helped students find part-time work by using the career interest information to make more meaningful placements. The job placement service also encouraged students to stay in school.

In an attempt to give students first-hand knowledge of the world of work the program set up a shadowing program. Under this component, students spent a day in a workplace (their parents if possible) "shadowing" an employee to get a closer look at the world of work. The program developed an Industry/Labor community profile which provided information of the types of existing employment needs, resources available for such things as field trips and speakers and other career information. Learning stations were set up outside the classroom, and career fairs and displays were held in local shopping malls. Finally, the project redesigned the student's cumulative folder, including a section called "my progress report for careers."

D. Administrative Structure

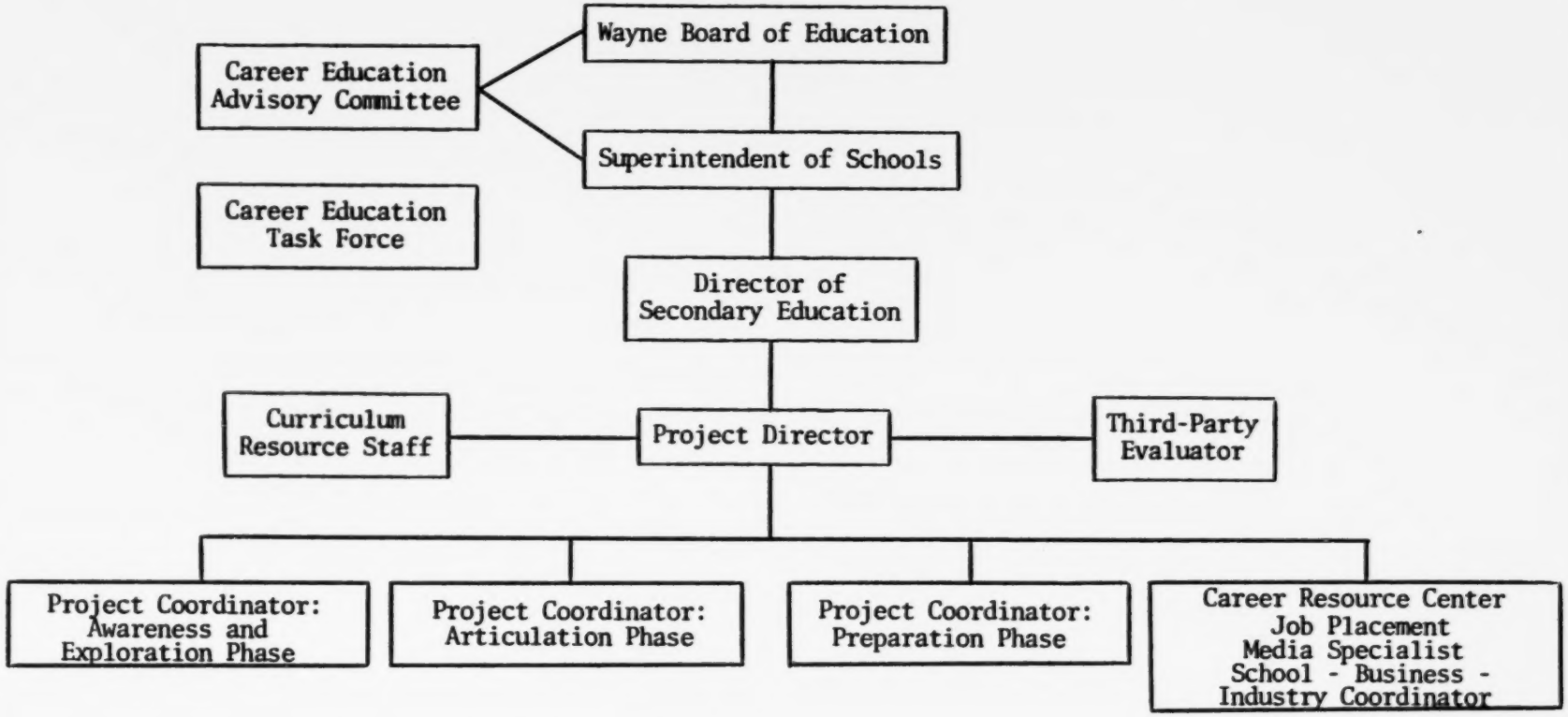
The project was funded directly by USOE and followed the organizational structure shown in Exhibit 3. Communication within the project was good as all key staff came from within the system and had been working in vocational and career education before joining the project. The project director was directly involved in the planning of the project prior to funding and had administrative support throughout. A staff meeting was held once each week to work on problems. Moreover, each staff member had one hour each week to meet individually with the director to solve problems or develop plans for the future.

E. Dissemination Activities

The staff of the project, in addition to their operational responsibilities, took an active approach to dissemination of project concepts, materials and methods. The dissemination strategy involved:

EXHIBIT 3

ADMINISTRATIVE STRUCTURE OF THE WAYNE CAREER EDUCATION PROJECT



- making presentations regarding the project at state and national meetings. Much of the coordination and promotion of these meetings was done by the State Department of Education;
- inviting personnel, including students, to visit the Wayne project to see first-hand its operation, methods and materials;
- sending Wayne-developed materials to schools across the nation upon request; and
- sending staff to visit other schools to make presentations and assist them in designing and in implementing a similar program in their district.

The presentations, both at state and national meetings, included several elements, among them were:

- project objectives;
- description of target audience;
- program services including motivational techniques on how to get teachers to do things in the classroom;
- how to install a program without additional funding;
- staff mix, i.e., ratio of male to female; and
- subject matter.

The visits to school systems requesting assistance covered the same subjects in more detail. Staff placed more emphasis on the infusion of career education into the school curriculum, explained materials already developed and described how to make them fit the local system. In making their presentations, the Wayne staff attempted, as much as possible, to get their messages to district and school decision-makers.

The project staff carried the responsibility for dissemination activities, although initially, especially the first few months, the superintendent made some presentations. The State Department of Education also assisted by having the project staff make presentations at state meetings.

The final report shows that representatives from 19 districts visited the Wayne project; the Wayne staff made presentations at 24 districts; and materials were supplied to 46 districts. The names and addresses of all districts served are on file as part of the project records.

F. Adoptions

There are at least five school districts that have adopted all or parts of the Wayne Design for Career Education. These adoptions can be attributed to the dissemination efforts of the project staff.

Hamilton High School East
East Trenton, New Jersey

After several staff attended a dissemination workshop given by Wayne staff, the entire instructional staff was given a questionnaire concerning career education program preference. As a result, the entire Wayne program except the job placement component was adopted at Hamilton High School East.

Hamilton High School East serves an urban and suburban middle and working class population. All 2,800 students enrolled in the 9th-12th grades at Hamilton and two middle schools will be served by the program which started in September, 1979. One hundred forty-two (142) professional staff in the three schools are participating. The program is funded through Title IV-C which provides for equipment materials and visual aids.

Each department of the school will develop their own instrument of assessment measuring performance in areas of decision-making and economic awareness. No pre-test will be given.

Staff reported that the most useful tools for adoption were the site visit to the demonstration project and the Wayne materials. Staff recommended that the dissemination workshop be developed into an extension course at one of the colleges so that teachers could receive credit for participation.

Oceanside High School
Oceanside, Long Island, New York

In January, 1979, this system started the inservice training program and will start using all the components in January of 1980. Program services will be offered to the 2,200 students in this high school which serves a middle class suburban community. There will be pre- and post-tests given each year to determine if there is an increase in awareness and knowledge concerning careers. The program required no special funding.

The vocational educational staff had been looking for career education materials and were referred to the Wayne staff by a publishing company. After reviewing the material received from Wayne, one presentation was made to the school administrative staff. The concept was then accepted for use in the school.

An evaluation will attempt to provide evidence of an increase in the information students received concerning the world of work. The Kuder Preference Test is given to all 9th graders to give some insight into career interest areas. In addition, the school has developed an instrument to be given before and after the career education course.

Staff reported that visits to the demonstration project and presentations by Wayne staff were most useful in facilitating adoption.

Stamford Public Schools
Stamford, Connecticut

In September, 1979, this school adopted one component of the Wayne demonstration, the career resource center. The goal of their program was to develop career awareness in all 7th graders. Stamford staff learned about the program by attending a Connecticut Department of Education workshop which included a presentation by Wayne project staff. They used money provided by the state legislature to purchase equipment and materials. The program is available to approximately 300 students in a wealthy suburban community.

Ridgefield Public Schools
Ridgefield, New Jersey

This system only adopted the school/business/industry component. Ridgefield already had a LEA-funded program for the 6th, 7th, and 8th grades and felt the addition of this component would strengthen their six-year old program. It was initially funded with a small grant for a vocations program. After the grant funding ended the LEA picked up most of the cost.

The program serves 320 middle school students in a traditional blue collar community. The level of adoption was low. Only the techniques on how to establish a roster of community resources were adopted.

Staff reported that on-site visit of the Wayne demonstration was an effective tool in their adoption.

Hawthorne High School
Hawthorne, New Jersey

This school will use the teacher training workshop guide when they start their program in the Summer of 1980. The program is funded with a small state grant for an Introduction to Vocations Program. The program will serve a population of suburban students, 40% of whom will go to college.

Staff became aware of the Wayne demonstration through attendance at a dissemination workshop. There are at present no plans for evaluation.

II. EVIDENCE OF IMPACT

Proposed criteria for Interim and Final Acceptable Evidence are applied to the Wayne project below.

A. Interim Acceptable Evidence

Three components of interim acceptable evidence are reviewed in light of Wayne results. The standards for each are discussed below.

1. Demonstration Impact

The 20 project goals cited previously in this case study did not include any objectives for the project's target audience -- students. These goals focused on process. However, a number of additional goals, specifically directed at students, were stated in the project's original proposal:

- students will develop and demonstrate comprehensive educational and employment skills on a pre-K/adult continuum leading to employment and/or continued education;
- students will gain knowledge about the range and nature of various careers including their educational and personal requirements;
- students will gain increased awareness of their value systems, their individual interests and abilities, and their interpersonal relationships, as emerging factors in improving their educational and employment potential;
- students will recognize the contribution of work to our civilization and demonstrate initiative and responsibility for exploring and developing their individual potential;
- students will develop career decision-making skills relative to "next-step" experiences in education and/or employment; and
- students will gain knowledge of and relate to the economics, political, societal and technological aspects of careers in our comtemporary civilization.

Although the project had a third-party evaluation, no formal evidence was presented which addressed the extent to which the above objectives were reached. The third-party evaluation was primarily a process evaluation rather than an impact evaluation. The project staff and the evaluator did

not want to get involved in a large testing effort. Evaluation concentrated on observation and interviews with project staff, teachers, and students. Thus, there were no pre- and post-measures taken and no comparison groups were used.

Conclusion. No specific evidence was obtained to show significant intended impact that can be directly attributed to the project which is the standard for this criteria. This evidence could have been collected by using pre- and post-measures and a comparison group. The project staff, the evaluator and monitor agreed that this approach would have been possible if they had decided to specifically measure impact.

2. Dissemination Activities

The project did not have a specific measurable objective relative to dissemination. Therefore, the achievement of an objective cannot be measured. However, the project was extremely active in dissemination and outreach. Presentations were made to schools and school districts; presentations were made at national and statewide conferences and workshops; and information was mailed upon request. The presentations made and the information mailed out contained sufficient coverage and detail regarding the important aspects of the project to facilitate replication. Information included project objectives, target evidence, project operation and services, expected effects, staffing requirements, training requirements for staff and teachers, facilities and materials, and costs. Detailed records have been kept of names, addresses, and telephone numbers of all organizations reached through the dissemination effort. The adopters who were interviewed indicated that the information provided by the Wayne project was very helpful in implementing their own programs.

Conclusion: No judgments can be made regarding achievement of a dissemination objective, since no specific measureable objective was stated. However, records maintained of the activities which were carried out would have provided sufficient evidence to assess achievement of an objective.

3. Efforts Toward Institutionalization

During the last year of federal funding, the Board of Education, local businesses, and the general community were very supportive of the program. By Spring of 1978, the funding for the aides in the Career Resource Centers was provided by local funds; the centers are now operated by the guidance departments with total local funding. Following termination of federal funding, the local Board

of Education agreed to continue the funding of five project staff members. Thus, the overall program has been infused into the regular school program.

Conclusion: Efforts toward institutionalization were carried out during the last phases of federal funding. These efforts were successful in that the program is continuing with local funds. Thus, the standard for efforts toward institutionalization has been met.

B. Final Acceptable Evidence

Final acceptable evidence of project impact concerns the utilization, long-term impact, and continuation/adoption impact of a program.

1. Utilization

The Wayne project is being continued using local funding. The local Board of Education is providing funds for five project staff members, while the Career Resource Centers are being operated under the school guidance departments. Thus, the overall project has been infused into the regular school program.

The program has also been fully or partially adopted in at least five other schools or school districts. These are Hamilton High School East, Trenton, New Jersey; Oceanside High School, Oceanside, Long Island, New York; Stamford Public Schools, Stamford, Connecticut; Ridgefield Public Schools, Ridgefield, New Jersey; and Hawthorne High School, Hawthorne, New Jersey.

Conclusion: The standard for acceptable evidence of utilization has been met since the program is being continued and has been adopted.

2. Long-term Impact

No follow-up is presently being conducted to assess long-term impact of the overall career education project. However, a follow-up study is feasible since names and addresses of former students are available. A follow-up of cooperative education students is being conducted by the school and this effort could be expanded to all students exposed to the career education project.

Conclusion: Follow-up of students is feasible since records of names and addresses are available.

3. Continuation/Adoption Impact

Although the programs have been institutionalized within the regular school program in Wayne, no evidence is presently being collected to assess the impact of the program on students. Similarly, three of the five adopting sites contacted have no specific plans for evaluating the impact of the program. The two other adopting sites are currently beginning to plan an evaluation strategy.

Conclusion: No evidence of continuation/adoption impact is currently being collected. However, an evaluation to provide this evidence is feasible in a similar manner as an evaluation to provide evidence of demonstration impact.

III. CONTRIBUTIONS TO PROJECT SUCCESS

A. Pre-Grant Period

The school system was alerted by the State Director of Career Education of the possibility of funds from USOE for demonstration projects in career education. They were advised to watch for an announcement in the Federal Register. When the program guidelines were published, the district decided that the federal program coordinator and the present project director should begin immediately to prepare a proposal. Some background work, including needs assessment and preliminary interface with the school board, had already been accomplished. Since 1968, various surveys had been conducted that supported the need for additional effort in this field of education. The school board had voted unanimously in favor of a career education program and The Chamber of Commerce had also voted to support it.

To prepare for the program, the proposed key staff visited several State Career Education Centers to learn how they were being operated and how to make their program consistent with the state mandated goals for education. Staff requested and received program development assistance from the State Director of Career Education and the State Director of Exemplary Programs. The school district did not receive a planning grant to assist in proposal development.

In summary, the principle contributions during the planning phase to the success of the program were:

- an available up-to-date needs assessment indicating a strong requirement for the program;
- community support;
- Board of Education support;

- support from top administrative staff;
- assistance from the State Department; and
- professional staff from within the district who were committed and capable of developing the proposal.

In addition, there were several things that were included in the proposal which proved to be very useful. These included:

- specifying clear objectives;
- defining the end product;
- correlating the budget with the project activities;
- including a management plan in the proposal;
- developing a Gantt Chart showing activities, milestones, and time frames for accomplishing each project goal;
- appointment of the ad hoc Advisory Committee; and
- involving the proposed project director in the development and writing of the proposal.

B. Grant Period

Several factors were cited as particularly contributing to project success during the grant cycle. The project director decided to use the MBO approach to the project. This approach required that all staff outline very clearly what they were to do once operation began. However, these defined activities were incorporated into a structure that also allowed the project sufficient flexibility to function effectively. The decision to hire staff from within the school system also contributed to project success. Finally, the fact that the project director had training and experience in finance and staff supervision was seen as a significant factor in the positive outcome of the project.

During the implementation phase, continued community and administrative support was an important factor in project success. The management decision to start the program at a pace that gave the instructional staff time to become familiar with program goals helped the project gain stronger acceptance later. Once the first group of teachers experienced the value of the career teaching concept, they assisted in stimulating interest from within. Also, the continued high quality work of the professional staff of the project contributed to project success. It was deemed very important to have a project staff and director who had worked in the

district previously and were familiar with its workings. A cooperative, close-working staff is essential to project success.

1. Evaluation

A self-evaluation and a third-party evaluation were proposed as two of the project goals. The self-evaluation was to be internal and carried out by project staff. It allowed the staff to measure their effectiveness in terms of meeting project objectives and provided feedback from both the community, the instructional staff and the school administration.

The goal of the third-party evaluation was to maintain a high level of objectivity and ensure that the project was meeting the career education needs of the district. The final evaluation report indicated that these original goals were met. There were no constraints on the evaluation. However, after the first year, a change had to be made in the evaluator due to the fact that the original third-party contractor was unavailable for the remaining project period.

The third-party evaluation plan provided for a process evaluation and did not attempt to measure the impact of the program on students through pre- and post-testing and the use of comparison groups. According to those interviewed, the use of comparison groups and extensive testing would have created problems with the instructional staff. Since the program involved all Wayne students, comparison groups would have to be established outside the district, thus creating administrative problems.

While the project staff received many positive statements, letters, and comments indicating success and positive impact on individual students, no evidence of overall impact was provided. The staff indicated that for future projects, they would like to place much more emphasis on impact evaluation to determine if, in fact, they were making a change in the students performance.

It was felt that an outline of the evaluation plan should be put in the funding proposal. This outline would be more appropriate for a proposal than a fully-developed evaluation plan.

2. Demonstration/Dissemination

Dissemination was an important activity of the project staff. Staff time and travel expenses were included in the project budget. The dissemination activities involved

three main components. The first was showing interested parties the Wayne program; the second involved project staff visiting other districts; the third was mailing project materials and information upon request.

The most effective strategies included:

- early involvement of the State Department of Education;
- making the presentations at state and regional meetings for wide exposure;
- use of project staff who had the best knowledge of the program; and
- maintaining the support of the administrative staff.

The staff is continuing dissemination of project materials by making presentations on a request basis. The district is being reimbursed for the cost of the materials and travel by the districts and schools making the request.

C. Post-Grant Period

The Career Education Program has been institutionalized into the Wayne school system program. Moreover, at least five sites have adopted all or part of the program.

IV. ALTERNATIVE TIMING OPTIONS

Project staff members were convinced that a three-year demonstration period was not sufficient for adequate dissemination of information and program spread and recommended a five-year funding period. The first three years would involve full funding for the actual operation of the project. The last two years would involve partial funding to continue dissemination activities, to conduct a follow-up on students who participated in the program, and to allow time and resources for doing more in the area of impact evaluation. It was felt that a period of reduced funding during the last two years would make institutionalization easier as the local district would not have to assume the cost of the entire program all at once.

CAREER LADDER INFUSION MODEL BUILDING

PROJECT CLIMB

Garden Grove, California

I. PROJECT DESCRIPTION

Project CLIMB was developed by the Garden Grove Unified School District, Garden Grove, California. The project, designed to infuse career education into the academic curriculum, was implemented during the period July 1975 to July 1978. The major goal of the project was to introduce academic students to a range of careers, career preparation options and to the requirements of the working world.

A. Target Area and Target Population

The district is located in Orange County which claims to be the fastest growing county in the United States. Of the 25 square miles which comprise the school district, 17.3 square miles encompass the city of Garden Grove. A substantial part of the remainder is made up of the northwest portion of the city of Santa Ana, which is predominantly Mexican-American.

The school district has a population of approximately 200,000, including 51,000 students. Seventy-two (72) schools provide K-12 education. Pacifica High School, the primary site of the CLIMB project, is one of eight high schools and is situated in the western most portion of the school district. Pacifica is unique in the district in that it serves only grades 10 through 12 while all other high schools serve grades 9 through 12. The student population at Pacifica numbers about about 2,000, and is predominantly white and middle class. Of the few minorities, Chicanos and Orientals outnumber Blacks.

Parental occupations of the students at Pacifica vary widely and include small business people, professionals and tradespeople. Pacifica High School is not vocationally oriented since the community emphasis is on college education. As a result of this emphasis and the interest of the district in career education, district personnel perceived the need for provision of career information in the academic curriculum. This need resulted in the development of the CLIMB project.

B. Goals and Objectives

Project CLIMB was initiated to increase academic high school students' awareness of the world of work and the stages of

career development to enable students to see themselves and the academic curriculum in relationship to work, and to increase competency in basic skills through the performance-based curriculum. A primary goal was that students be made aware of options in career development which include employment and further technical training as well as college enrollment.

In order to achieve this goal, CLIMB sought to adapt, design and implement career education curriculum units into core disciplines. The project was instituted initially in English, math and social studies courses and utilized health, public services, business and office, marketing and distribution and hospitality and recreation clusters. The transportation cluster was added later since it was more applicable to math courses. The project was applied initially at grade 10 and subsequently moved to grades 11 and 12. Concommitantly, a program of exploratory work experiences was developed and provided for CLIMB participants. A major focus of the project was staff development. Teachers were trained to understand underlying career education concepts, to write curriculum units and to field test them in their classroom. Objectives were delineated in the proposal for six components of the project instruction, staff development, curriculum development, parent and community involvement, project management, and guidance. Major activities for each objective were defined and evaluation specifications were stated for both the objectives and their activities. Objectives were stated in measurable terms providing a framework for managing the evaluation and for developing quarterly and final reports.

The following measurable objectives appeared in the proposal:

1. Instruction

   1.0 Project participants' mean scores on the Career Maturity Inventory will exceed the 50th percentile by May 1978.

   1.1 Participants will equal or exceed mean gains of a comparison group on the CTBS (achievement test). This objective investigated the relationship between the program and academic achievement.

2. Staff Development

   2.0 Participating first year staff will score 75% on the project-developed Teacher Career Survey.

3. Curriculum Development

   3.0 Twenty career infusion units will be prepared, field tested and accepted.

4. Parent Involvement

   4.0 Advisory Committee members will have attended 75% of the meetings and will have reviewed project materials.

5. Project Management

   5.0 The project will be implemented as written in USOE guidelines.

6. Guidance

   6.0 Eighty percent (80%) of the project participants will be involved in community exploration.

   6.1 One hundred percent (100%) of the participants will be involved in decision-making through the infusion units.

These objectives provided the basis for project implementation, management, evaluation and reporting. One hundred nineteen (119) 10th grade students from Pacifica High School were involved during 1975-6; three hundred thirty (330) 10th and 11th grade students participated during 1976-7 and four hundred (400) participated during 1977-8.

C. Project Activities

One project specialist and three teachers from Pacifica developed a career infusion unit for infusing career concepts into academic subjects. Career infusion units were defined as materials which could be integrated into the regular curriculum of the district. The objective was to develop units that would be a congruent part of the school curriculum using adopted or supplementary materials. Teaching was intended to provide enrichment, breadth and depth. Each unit included career concepts and objectives, and proposed activities or sources from which teachers could select materials. Many units included supplementary worksheets. All of the materials were integrated into grade level guides which minimized repetition among the units. During the first year the focus was on the 10th grade and during the second year the 11th grade was added. The 10th grade was dropped and the 12th grade was added at the project school during the third year. As each set of materials was completed, they were revised and prepared in publishable form.

The three project teachers applied the units in specified sections of core English, math and social studies courses. Students enrolled in those classes were told that the traditional curriculum would be modified to introduce concepts from occupations in five (later six) clusters. They would also be given opportunities for exploratory work experiences related to their interests. Students could elect to change to an alternate section of the course if they preferred not to participate.

The intent of the exploratory work experiences was to help students to understand themselves, jobs, and job opportunities in order to help them make intelligent career choices when they left high school. The major activity in this component was field trips which were arranged in cooperation with community agencies. In some cases, guest speakers were also brought to the campus.

The project specialist and teachers developed the work experience sites and opportunities including field visits, lectures and presentations. Internships originally proposed as part of the work experiences were not developed for reasons discussed in Section III, B.

A major focus of the project was staff development. Teachers were first helped to understand the curriculum concepts which were to underlie all of the units. They were then helped to write the units and to field test what had been written in their own classes. Teachers were expected to score 75% or better on a project-developed test on the information which was to be taught to the students.

D. Administrative Structure

The Garden Grove Unified School District received funding for Project CLIMB directly from USOE. Federal project management was provided by regional staff in San Francisco and later by central office staff in Washington, D.C. Project staff reported that closer relations were maintained with federal staff when liaison was through the regional office.

Exhibit 4 displays the administrative structure of the project and lines of authority of CLIMB staff.

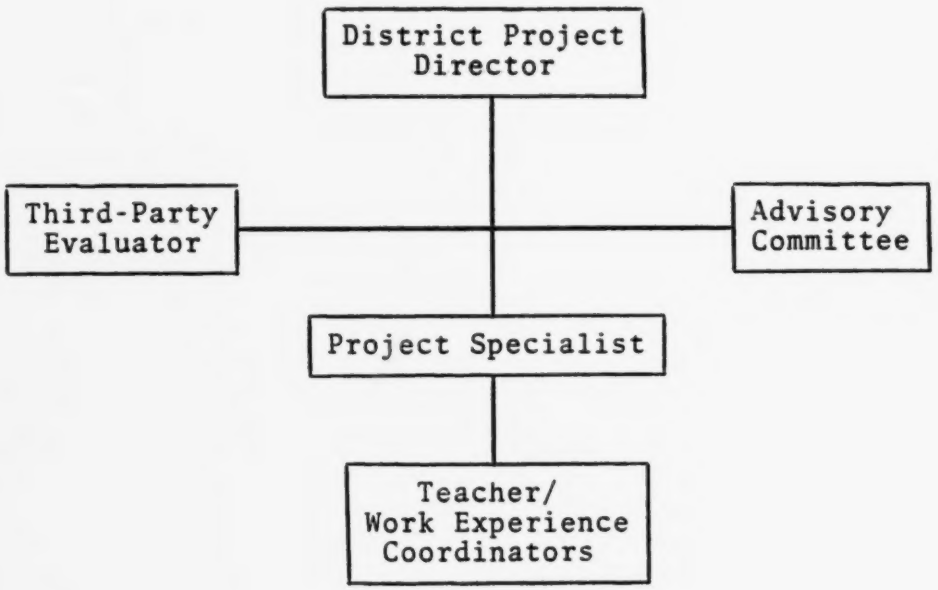
Overall project guidance and support was provided by the Garden Grove Unified School District project director. Clerical support, reporting and financial accounting was also handled at the district office.

Primary day-to-day project management and direction was handled by the project specialist at Pacifica High School. This individual was a Pacifica High School teacher who was relieved of teaching duties during the project and assigned full-time to coordinate CLIMB activities. He was responsible for community liaisons, overseeing teacher curriculum development, dissemination, planning and providing in-service training, working with the third-party evaluator, and in the third year, coordination with transport schools.

The third-party evaluator worked closely with the project specialist to ensure the timely collection of data. She was

EXHIBIT 4

ADMINISTRATIVE STRUCTURE OF PROJECT CLIMB



responsible for the formative evaluation of the project as well as summative evaluation design, analysis, and reporting.

The project advisory committee met approximately six times per year. The primary activity of this body was to promote project activities, to facilitate the development of community work experience sites, to provide liaison with the Chamber of Commerce who also worked to develop sites, and to provide feedback from representative groups on curriculum development.

Working under the direction of the project specialist, the three Pacifica High School teachers who participated in CLIMB were responsible for developing the infusion curriculum in their subject area, instituting them in their classrooms, identifying information needs and career interests, and developing subject-appropriate work experiences for students. During the first year, the equivalent of one teacher year was allotted to relieve these teachers of normal duties in order for them to perform CLIMB activities.

In the second year, the number of teachers involved doubled for a total of six and doubled again for a total of twelve teachers in the third year though funding for teachers' time was held constant over the three year period.

E. Dissemination Activities

Major responsibility for publicity and dissemination rested with district office staff and the project specialist. In order to publicize the existence of CLIMB, articles were published in local newspapers and in local professional publications such as the California State Department of Education's Vocational Education News. Brief project overviews were mailed to several interested individuals throughout the state. The project overview included a statement of the goals and objectives of the project, the target audience, program activities, expected effects and a brief mention of the economy of the infusion model.

Copies of completed curriculum units were distributed to the English, Math and Social Studies departments at the eight high schools in the district. Approximately 70 overview and sample units were distributed at the Career Education and Economic Awareness Conference in San Diego, California. Presentations were also made at the Part D, Region IX Conference and the Job Search Workshop given by Garden Grove Employment Development Department.

F. Adoptions

As originally conceived and funded, CLIMB did not include an active effort to transport the project to other sites. During

the third funding cycle, however, objectives were written for transporting the project to two additional high schools in the Garden Grove Unified School District. Primary impetus for this inclusion came from the USOE project officer. Transporting was written into the third year (1977) funding request and project plans by the project staff. An additional $14,000 was provided for transporting project CLIMB to the two additional schools. The two schools, Bolsa Grande and Santiago were selected because of their commitment to the concept of career education and interest in project CLIMB.

Bolsa Grande High School
Garden Grove, California

The principal of Bolsa Grande High School was introduced to project CLIMB at a District Principals' Meetings. He volunteered for Bolsa to be a transport school when funds became available to disseminate during the last year of Pacifica's funding. Bolsa received a small amount of money for purchase of materials for the project. No funds were provided for staff at the transport schools. Bolsa Grande has a lower SES population and a higher percentage of minorities (11%) than Pacifica High School. Approximately one hundred and twenty (120) students in the 11th grade were involved in CLIMB during the September 1977 to June 1978 school year.

Orientation to career education and infusion concepts and project materials was provided by Pacifica High School CLIMB staff. Unfortunately, late notice of dissemination funding resulted in delay of orientation staff training, student selection and infusion of units into the curricula

Bolsa Grande adopted all components of the CLIMB project, adapting the curriculum materials to the specific needs of its population. One teacher, designated as project leader, and five others incorporated the CLIMB materials into their core curriculum classes. At Bolsa Grande, CLIMB was infused into two classes each of English, math and social studies.

Staff reported that they received support from the project specialist in developing work sites but would have liked the opportunity to visit the project in operation, more start-up time and additional in-service workshops.

Transport schools used a modification of the program evaluation methodology and criteria used at Pacifica. No objectives were written for curriculum development or project management since these functions were handled by the Pacifica CLIMB staff. Evaluation was designed, managed, and reported by the third-party evaluator.

A major difference in teacher attitude was found between transport teachers and original project staff. Transport teachers who volunteered their time, felt less commitment and interest in the project.

Evaluation results of students and teachers supported those of the CLIMB demonstration.

Santiago High School
Garden Grove, California

The process of awareness and adoption was the same for Santiago as for Bolsa Grande. Santiago High School has the lowest SES level and highest minority population (44%) of all three schools. Approximately two hundred 10th and 11th grade students participated in CLIMB during the 1977-78 school year.

Six teachers, including one project leader, participated in the program. They adapted CLIMB materials and incorporated them into two sessions each of English, math and social studies.

Staff reported that preparation and time for adoption was inadequate.

Evaluation was accomplished by the third party evaluator using a modification of the methodology created for the Pacifica project. Results supported those obtained from the Pacifica demonstration.

II. EVIDENCE OF IMPACT

A. Interim Acceptable Evidence

1. Demonstration Impact

Two areas were analyzed in evaluating the impact of CLIMB instruction on students. The first explored whether the participants would evidence a higher level of sophistication about jobs, themselves, and career planning than a norm population. The second investigated the effects of infusion of career concepts on academic achievement. The hypothesis was the inclusion of career education concepts should facilitate achievement (or at least should not detract from achievement.)

Using a post only design, the impact of CLIMB on participant career knowledge as measured by the Career Maturity Inventory (CMI) was compared with CMI norms. The standard for success was the exceeding of the 50th percentile. Five scales were analyzed: Attitude Scale; Part I - Knowing Yourself; Part II - Knowing About Jobs; Part III - Choosing a Job; and Part IV - Looking Ahead. Final year results indicated that 11th grade students exceeded the 50th percentile on the Attitude Scale and Parts II and IV. Twelfth graders exceeded norms for Part II.

Project participants were compared to a comparison group on the CTBS Achievement Test, using pre/posttest scores for both groups. Santiago and Bolsa Grande were used as the comparison population. The standard was that Pacifica students would score higher or that no significant differences would be evidenced between Pacifica and comparison groups. Results showed that the differences between groups on 11th and 12th grade math and social studies and 12th grade English were not significant. Pacifica 11th grade students scored significantly higher (.01 level) than the comparison group on the English section. Thus, the standards for success were met.

Conclusion. According to the test data, the project was successful in that academic scores did not diminish as a result of participation and 11th grade participants' English scores significantly improved. Student results on the measures of career knowledge, however, cannot validly be attributed to the project since no baseline data were collected. However, the evaluator said that baseline data could have been collected given more lead-time.

2. Dissemination Activities

Most significant of the dissemination activities is the inclusion of CLIMB in the ERIC system. Other dissemination activities were limited and included the distribution of some project overviews and sample curriculum units, and presentations at two conferences and a workshop. Dissemination materials included project objectives, description of the target audience, expected project effects, and staffing requirements, but did not include extensive information on the project that would assist potential adopters. Dissemination was not stated as a project objective.

Conclusion. Dissemination was not perceived as a major objective of the project and, therefore, was not adequately provided for in the budget. Since objectives were not stated, achievement of the standard for this criterion could not be assessed.

3. Efforts Toward Institutionalization

From the beginning, the purpose of the CLIMB project was to infuse career education into the ongoing curriculum. No funding was planned for continuation after termination of the federal grant. Thus, although some materials are available in the school district, there are no funds for preservice or inservice teacher training, or technical assistance

Conclusion. Even though the standards for this criteria were met in that the program was infused into the curriculum to some extent, efforts were minimal and probably will not be enough to sustain the program.

B. Final Acceptable Evidence

1. Utilization

At present, thirteen teachers at the host school are using CLIMB concepts to some extent. At one other high school in the district, two teachers are using it to some extent.

Conclusion. It does not appear that the standards for the continuation and adoption criteria have been met.

2. Long-Term Impact

There are no provisions for doing a follow-up of project participants.

Conclusion. The project did not meet the standards for this criteria. However, a conversation with the third-party evaluator indicated that a follow-up of participants and a comparison group would be possible if planned for.

3. Continuation/Adoption

The short-term impact of the program on the students at the host school and the adopting school are not being assessed.

Conclusion. The project has not met the standards for this criteria, and, with the present level of continuation and adoption, it does not appear to be a feasible undertaking.

III. CONTRIBUTIONS TO PROJECT SUCCESS

A. Pre-Grant Period

This project resulted from Garden Grove Unified School District's awareness of the importance of career education in secondary education. Planning occurred exclusively at the District level with input from the Chamber of Commerce in assessing feasibility and interest in obtaining work experience sites and from high school principals after the project was almost fully conceived.

Several occurrences in the planning period had implications for the future progress of the project. The involvement of

the third-party evaluator in the proposal development process was a major contribution to the project's successful management and evaluation. Project objectives were clearly defined in measurable terms, corresponding activities were delineated and evaluation specifications were developed for both objectives and activities. Thus, the project was developed with a workable evaluation plan which was acceptable to project staff, the evaluator, and USOE.

Lack of involvement in the planning of on-site project staff, especially the project specialist was reported to have been a problem by project staff. Because they were not involved in the conceptualization of the project, staff did not have a full awareness of the background, goals, and objectives of the project at the outset. Staff reported, too, that district staff who wrote the proposal were not familiar enough with the day-to-day workings of the high school and classroom. This lack of familiarity resulted in a proposed project which was difficult to translate into the actual school situation.

B. Grant Period

The clarity and format of the project proposal was helpful in that it provided a framework for the management, evaluation and reporting of project accomplishments. A major contribution to the successful management of the project resulted from the management system developed and maintained by the third-party evaluator. The system was set up to assist the project specialist in accomplishing requisite tasks in a timely fashion and in completing evaluation tasks as specified. Since the third-party evaluator had been involved in the proposal development, she was able to help project staff understand the background and objectives of the project.

One major accomplishment of the grant period was the change in attitude of participant teachers. Staff reported that teachers became more aware of the needs of their students, more sophisticated in curriculum development, more aware of the importance or career education for students, and more self-confident.

The resultant curriculum units for infusion of career education into academic classrooms can also be considered a major accomplishment of the project. It was reported that 10-20 non-participating teachers at Pacifica used the curriculum in their classrooms.

The project was also aided by the local Chamber of Commerce which set up a subcommittee specifically to develop work experience sites and opportunities.

One of the major problems that limited the progress of the project as originally conceived was the inability to place students in meaningful internships. Industry was not willing to accept 15 year olds for meaningful work. Reasons given were that students were too immature and lacked necessary basic skills. Employers also felt there were too many potential liabilities in using students under the age of 16.

Efforts to develop internships as non-paid, for-credit work experiences would require employers to set up objectives and curricula and monitor their assignments in order to meet requirements of the state education code. Such a requirement would place too great a burden on most employers. Staff felt that if these impediments had been identified in the planning stage a waste of energy and time could have been avoided.

During the grant period, there were several changes in the project director at the district level. Though there was no consistent project management from the district, project staff reported that the district staff were helpful in providing clerical support, helping with training sessions, setting up the advisory committee and obtaining guest speakers. Regional USOE staff were helpful in providing overall direction before the function was moved back to Washington.

Field trips and lectures replaced internships and work experiences. Problems were also encountered in providing field trips. These problems included the requirement for parental permission to participate if activities were off school grounds and problems resulting from teachers and students having to miss required classes for field trips which required more than one class period.

Evaluation

The evaluation of the project was a major success which can be attributed to the inclusion of the third-party evaluator in the proposal development phase and to her careful monitoring of the completion of evaluation activities.

The evaluation methodology was modified slightly during the grant period to reflect the staff's inability to develop an instrument to measure changes in student career knowledge and sophistication. The modification resulted in the use of the CMI to measure change in student attitude and knowledge of career issues.

The third-party evaluator reported that there were no constraints on her evaluation methodology. However, additional funds would have allowed her to analyze the data more extensively. The effectiveness of the evaluation design and implementation could be attributed to her involvement in the planning stage.

Demonstration/Dissemination

Dissemination was not addressed in the project proposal. However, several dissemination activities were implemented including press releases, distribution of project overviews and materials and conference presentations. The project was also included in ERIC.

A major problem in dissemination was the staff's lack of awareness of the purpose and intended audience of dissemination activities and materials.

C. Post-Grant Period

No effort was made to provide for continuation or institutionalization of the program since the federal funding ended. Several teachers reported that they still use the concepts presented by the CLIMB materials but no active training or implementation occurred after the funding cycle.

IV. ALTERNATIVE TIMING OPTIONS

All project participants agreed that timing of the initial funding and third cycle funding (of two adoptions) was a major problem. Original funding notification was received July 1, 1975. Funds were accepted by the Board of Education on July 15 of that same year. Staff felt, however, that if funds had been received before the close of school on June 25, selection of teacher and student participants and preliminary start-up activities could have been initiated prior to close of school. After the close of school, student class selection has been completed, teacher assignments have been made, and teachers are generally unavailable. Thus, the July funding caused schedules to have to be revised in September. It also prevented the staff from taking advantage of the summer months for initial preparation and inservice training. The project specialist did return to school one week and participant teachers a few days prior to opening, but this schedule did not allow adequate preparation.

The nature of the proposed time-frame did not allow for adequate start up time within the grant period. Thus, teachers were expected to incorporate career education concepts into their classes before they had had time to develop the materials. The time-frame called for a simultaneous development/implementation/evaluation period. Time was also not allotted for ordering and developing materials and inservice training of staff before classroom implementation.

Staff reported that implementation would have been smoother if it had been delayed until at least the second semester.

A similar problem arose during the third cycle when funds were requested for transporting CLIMB to two other sites. Funding approval of an additional $14,000 was received late and schedules were already fixed. Schedule revision and teacher training did not occur until after the opening of school during the CLIMB implementation year.

Staff reported that the optimum funding schedule would be one in which notification of project acceptance occurred in April. This would allow assignment of students and teachers during the original schedule development. However, funding anytime prior to the end of the school would allow revision of schedule and assignment of classes, and prior notification of project staff. It would allow planning and training activities to begin over the summer and would reduce the problems associated with starting up in September.

Staff also reported that a four to five year funding cycle would allow for a much better demonstration project. The first half year or more could be spent on planning and materials development and/or refinement. Years two and three would provide an adequate implementation/evaluation period. The remaining year or two would provide an adequate period to disseminate the project, allowing provision of technical assistance to new sites and evaluation of impact.

EXPERIENCED-BASED CAREER EDUCATION FOR MENTALLY DISABLED STUDENTS

Fort Dodge, Iowa

I. PROJECT DESCRIPTION

This project is being funded with federal and state matching funds from July 1, 1978 to June 30, 1981. Prior to funding this dissemination project, a pilot program was conducted for one year during which the Appalachian Educational Laboratory Experience-Based Career Education curriculum (AEL-EBCE) was modified for use by mildly disabled students (EBCE-MD). The pilot program was funded by federal research funds from May 1, 1977 to September 30, 1978. The grantee for this dissemination project is Iowa Central Community College in Fort Dodge, Iowa, which is located in the northwest central part of the state.

A. Target Area and Target Population

In 1970, Iowa had a population of 2,825,041. The state has several small towns and medium to large cities widely distributed across the expanses of agricultural land which covers most of the state. Agriculture, agribusiness, agriculturally-related industries, and support services are major employers. Other employers include meat packing, chemical, and automotive industries.

Iowa has a relatively low minority population which is composed of Blacks, American Indians, Asians, and Spanish speaking. Minorities are concentrated in a few areas mostly in the Eastern part of the state.

The target population for the project encompasses all of the mildly mentally disabled students in the state. The definition of the student population that appears in the proposal is given below:

> The population to be served by this project is identified as the mildly mentally disabled or mentally disabled educable population, as defined by the Rules of Special Education for the State of Iowa. "Mental disabilities is the inclusive term, denoting significant deficiencies in adaptive behavior and sub-average general intellectual functioning. For educational purposes, adaptive behavior refers to the individual's effectiveness in meeting the demands of one's environment and sub-average general intellectual functioning, as evidenced by performance greater than one standard deviation below the mean on a reliable individual test of general intelligence, validated for the individual people."

B. Goals and Objectives

The purpose of the project is to disseminate Experience-Based Career Education for Mildly Mentally Disabled Adolescents (EBCE-MD) throughout Iowa over a three-year period. The plan is to train Work Experience Instructors (WEI) in the EBCE-MD process in five Area Education Agencies (AEA) per year. The training is designed to complement the same state strategy design for EBCE-Part D for regular students. The model selected is the EBCE-MD modification of the Appalachian Educational Laboratory (AEL) model as piloted at Iowa Central Community College.

Five broad areas give the focus of the EBCE model.

1. First, it is a career exploration program. The main objective of this focus is to (a) help students determine their interest and abilities and subsequently related directions for developing careers, and (b) to learn some of the tools and processes for making career decisions the rest of their lives.

2. The model is experientially oriented. Student's career and academic experiences focus on the community as a resource -- a resource that is functionally tied into the instructional system. This includes the identification of businesses, social institutions, labor unions, industry, political institutions, and service organizations, as well as the defining of those resources in such a way they can be systematically tapped for inclusion in the learning process.

3. The program allows for total individualization of students' programs -- both career and academic. This includes the presence of a content structure that can, on a personalized basis, be tied to students' interests and needs. It has been pointed out that individualized instruction has been used to reference a diverse array of educational methods. For example, in EBCE there can be independent study, self-directed study, learner-centered programming, self-pacing and student-determined instruction. This individualization is completely documentable and accountable, so that students' programs can be checked at any time to determine progress. Included in this "accountability" is an individualized student evaluation and updating process.

4. As can be readily discerned from the preceding three focuses, the model is comprehensive. It includes all the essential elements for an educational system, from a defined content to an instructional strategies to underpinning and supporting materials.

5. The model is also an alternative. That is, a complementary program to other successful secondary education programs. It is important to emphasize "complementary" because EBCE was designed to provide an integral and missing part of a total career education program, not to replace working programs already in existence.

The training site and demonstration center is at Iowa Central Community College located in the Arrowhead Area Education Agency (Area #5). At the end of three years, all WEI's in Iowa will have an opportunity to receive training in the utilization of the EBCE system to provide exploratory experiences for mentally disabled adolescents. Following are specific objectives of the project.

Project Objectives

- To develop with the aid of the Applachian Educational Laboratory and the EBCE-MD staff of Iowa Central Community College, a complete system for dissemination of EBCE-MD materials and procedures. Targets will be area schools, the area education agency and local school personnel in order that materials have the potential for being used in a substantial number of classrooms.

- To identify and orient five AEA's each year for three consecutive years (15 AEA's total) who will initiate the EBCE-MD system with an identified population.

- To train the work experience instructors from five AEA's each year for three consecutive years (15 AEA's total) in the EBCE-MD process and in utilization of the EBCE-MD curriculum materials.

- To develop the capability of disseminating the EBCE-MD curriculum materials developed in the previous project through implementing the EBCE-MD program in the five AEA's each year for three consecutive years.

- To demonstrate the effectiveness of EBCE-MD program and utilization of curriculum materials in five AEA's each year for three consecutive years.

Student Objectives

- Each EBCE-MD student in the program will have an individualized career education program developed cooperatively between the student and the LC (the regular education or special education instructional staff will also be involved.)

- Each EBCE-MD student will have the necessary community-based exploratory experiences available to him that will allow the student to accept the following work adjustment and work experience tasks.

Each EBCE-MD student, therefore, will:

Personal - Social Skills

- Increase their skills of self-awareness as measured by an acceptable instrument.

- Increase their skills of self-confidence as measured by an acceptable instrument.

- Achieve greater social responsibility behavior as measured by an acceptable instrument.

- Increase interpersonal skills as measured by an acceptable instrument.

- Achieve greater independence as measured by an acceptable instrument.

- Increase their ability in decision-making skills as measured by an acceptable instrument.

- Increase their communication skills as measured by an acceptable instrument.

Occupational Guides and Preparation

- Increase their knowledge of occupational possibilities as measured by an acceptable instrument.
- Increase their awareness in making occupational decisions as measured by an acceptable instrument.
- Increase appropriate work behaviors as measured by an acceptable instrument.
- Increase physical and manual skills as measured by an acceptable instrument.
- Develop an awareness of seeking, securing and maintaining satisfactory employment.

Measurement of Student Objectives

Note:

As is noted above in each student objective, the phrase "as measured by an acceptable instrument" indicates that one of the essential aspects of this project in adapting EBCE-AEL model for mentally disabled adolescents is to select appropriate instruments that are designed for use with mentally disabled adolescents. Such measurements must be congruent with the concept of the Experience-Based Career Education model as developed by AEL.

C. Project Activities

Several basic procedural tasks were outlined in the proposal to achieve the stated project objectives. These activities are:

- Operationalize the project such as hire the staff;
- Form the advisory committee;
- Conduct orientation and awareness sessions for representatives of the Area Education Agency (AEA), local school personnel and community leaders;
- Develop training design and evaluation systems in EBCE/MD model. Create materials including instructional materials for both instructors and students, and public relation materials for the school and community;

- Conduct training for AEA staff to facilitate implementation of EBCE-MD model and dissemination of the curriculum materials to local schools;

- Develop within each AEA the capability to serve EBCE-MD students. This includes such activities as providing inservice training, developing experiences sites, recruiting students, and establishing effective public relations to assure continuation of the program;

- Implement the program in each AEA and provide technical assistance as it is needed; and

- Evaluate the program. Prepare reports and disseminate them to appropriate agencies and personnel.

Students enter EBCE on a voluntary basis. The concept is presented to students, then they must determine if it will meet their needs or not. Once students have enrolled they must go through three or four days of orientation. The purpose of orientation is to make sure they understand their responsibilities within the program. It is also a time when students lay the foundation for their career and academic program while in EBCE.

The first major task for students is to determine the occupations they want to explore. This is accomplished by having each student identify his/her career goals and interests by using four assessment instruments. These instruments relating school subjects and occupations, work activity checklist, work situation checklist, and the aptitude self-rating are completed by each student.

One subject every student must enroll in is Career Planning. Students then survey the remainder of subjects and focus in on one or two courses that they want to take. In these courses, the students select the subject concepts and/or interest areas which interest them. Each of the five academic areas (mathematics, English, social science, natural science and career education) are delineated by an alphanumeric numbering system that lists concepts, subconcepts and interest areas.

It is during orientation that the first assignment for the students are developed in each subject area. The learning coordinator (LC), on an individualized basis with the student, outlines an activity sheet, specifying what the student will be learning for the first four days at the site.

Each activity sheet is structured around the inquiry quest mode of learning. The process is as follows:

1. Define/clarify the problem or objective.
2. Gather relevant data.
3. Analyze the data.
4. Generalize or infer.
5. Communicate.

The student activity sheet details the process the student must follow at the community site in accomplishing their learning tasks.

The assignment is developed around the academic concept, tasks performed at selected site, any ideas from student and LC, and any basic skill deficiency that the student might have in reading and math.

Students are placed at their approved sites with a resource person four days a week for a minimum of three weeks and a maximum of 13 weeks. The fifth day each student reports in-house to develop new academic and career assignments, evaluate completed work and complete career academic assignments, observe occupational tasks and do some hands-on activities specifically related to the occupation being explored.

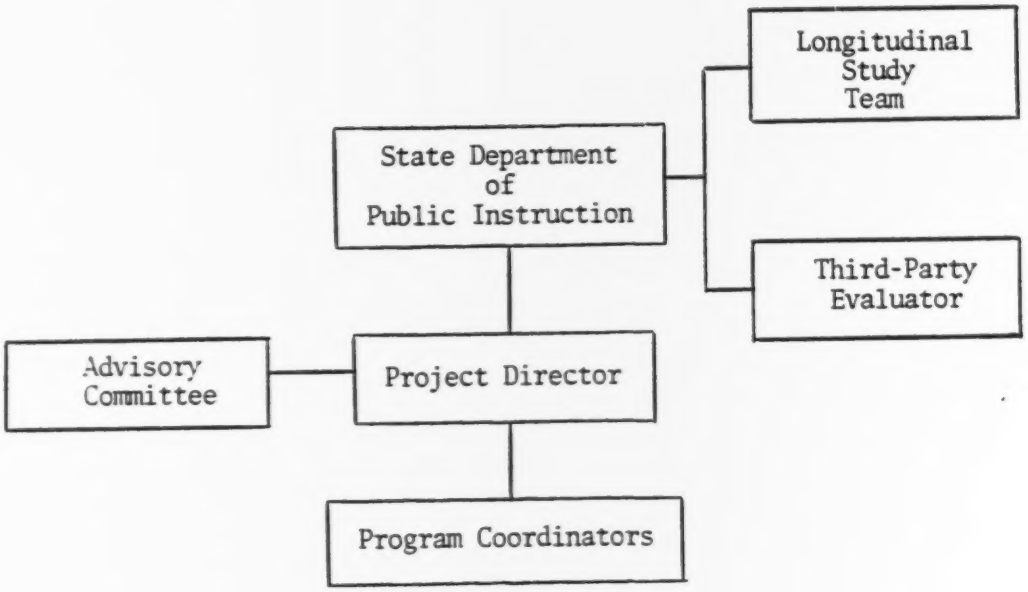
After each week or the completion of the assignment, new concepts or interest areas are selected. Also, after the initial three-week placement, the student must decide whether or not to continue at the same site or select a new one. Activity sheets are evaluated every week and periodic evaluations completed every nine weeks with final evaluation each semester.

D. Administrative Structure

The project is being monitored by the Department of Public Instruction (DPI). The project staff consists of a project director, three program coordinators, and an advisory committee (see Exhibit 5). The main responsibility of the project director is to coordinate and manage project tasks, work with the advisory committee, assist the third-party evaluator, and represent the project to government agencies. The program coordinators initiate contacts with area education and local education agency personnel to make them aware of the program, to encourage them to adopt it, and to provide training and technical assistance. The advisory committee is comprised of educators, representatives from business/industry, and parents. Their task is to provide guidance to the project.

EXHIBIT 5

ADMINISTRATIVE STRUCTURE OF THE
EBCE-MD PROJECT



The project has a third-party evaluator who is being monitored by DPI. In addition, a five-year longitudinal study of the EBCE-MD students is being conducted by a team of researchers from the University of Iowa. These researchers also report to DPI.

E. Dissemination Activities

The state of Iowa is divided into 15 area education agencies which report to the State Department of Public Instruction. Within each area education agency, there are several independent local education agencies. The dissemination strategy is to implement the EBCE-MD program in five AEA's each year for three consecutive years until all 15 AEA's have been covered. To accomplish this goal, the state has been divided into thirds so that dissemination activities are concentrated in one-third of the state for each of the three project years. Presently, the project activities are being focused on the middle third of the state.

Since the major purpose of the project is statewide dissemination, the project objectives and activities are also the dissemination objectives and activities. Therefore, they will not be repeated here. However, some additional dissemination activities were undertaken that are worthy of mention:

- Presentations were made at several conferences, meetings, workshops, etc.;
- Several articles and newsletters have been written about the EBCE-MD project;
- EBCE-MD, as implemented in Iowa, has been cited by Dr. Donn Brolin in his textbook for teachers entitled, Career Education for Handicapped Children and Youth. Dr. Brolin is a professor of education at the University of Missouri and a nationally-recognized expert in career education for the handicapped;
- Interested persons are encouraged to visit demonstration schools to observe a working EBCE-MD program and visit with program participants in the business/industry community as well as educators, students, and parents; and
- The Department of Public Instruction requires that each LEA include EBCE-MD in their school plan in order to get matching state special education funds. The state provides the training and technical assistance to the LEA through the AEA for implementing the program.

F. Adoption

ICCC has had much success with adoptions. This may be primarily attributed to two factors. First, is that dissemination is the entire purpose of the project and secondly the active support and commitment of the DPI to the concept of EBCE/MD.

To date, a year and a half since the project has been involved in dissemination, approximately 32 schools within Iowa have either implemented or are in the process of implementing the complete EBCE/MD model. In addition, three states, Nebraska, Illinois, and Wisconsin have made inquires and may be in the process of implementing the model.

The division of Special Education Services within DPI is committed to the success of EBCE/MD in Iowa and have actively encouraged the involvement of the AEA's in the project. The experiences of five adopting sites are summarized below.

Storm Lake, Iowa

This was one of the sites which implemented the pilot EBCE/MD program during 1977 and 1978. They have continued the program in the same form as it was originally implemented.

Students spend about six weeks at a work experience site and usually have approximately five to seven experiences during the school year. All instructor and student materials are obtained from ICCC.

Corning, Iowa

The Corning High School became involved in the program as it was disseminated throughout Iowa. All of the components were adopted. The program is supported with matching funds from the LEA and AEA.

The first group of students participated in the program in December of 1978. The reaction from the students and the community was very positive. This year the program is serving ten students, three girls and seven boys. The students have had a wide variety of work experience opportunities including: veterinarian clinic, auto body shop, grocery and retail store, bank, and hospital.

Estherville, Iowa

Nine work experience sites in the community were utilized to provide exploratory experiences for the six students who participated

in the program. All students were enthusiastic and the program was well received by the community.

Mapleton, Iowa

Mapleton has a population of approximately 1,000 which managed to provide the three students participating in the program with work experiences at a service station, grocery store, dime store, motorcycle shop, television repair shop, a nursing home, and preschool center. The WEI and LC tried to give students an opportunity to utilize a variety of skills so they provided approximately two or three job exploration experiences per student during the year. Both the students and the community have been enthusiastic about the program. Several potential host employers have called the school indicating that they would be interested in participating in the program.

II. EVIDENCE OF IMPACT

Characteristics of the EBCE-MD project were used to assess the practicality of the criteria, standards, and documentation as outlined in the interim and final acceptable evidence.

A. Interim Acceptable Evidence

1. Demonstration Impact

Short-term effects of student participation in the EBCE-MD program were measured by a third-party evaluator using the Brigance Diagnostic Inventory of Basic Skills (Brigance) and the Social and Prevocational Information Battery (SPIB). The Brigance is used to assess basic readiness and academic skills in key subject areas for planning an instructional program to meet the specific needs of the student. In this project, word recognition, math, and spelling skills were measured. The SPIB is used to assess individual needs and to program specific remedial instruction in nine areas generally included in secondary MD programs.

Pretest and posttest scores were obtained on both program participants and a comparison group. However, the comparison group was very small (ten students on the Brigance; 21 students on the SPIB). Because of this, caution must be used in interpreting the following test results:

- In each of the three basic skill areas measured by the Brigance, the EBCE participants' change scores were significantly greater than those of the comparison group in a positive direction; and

- On the SPIB, the change values were also significantly greater in a positive direction for the EBCE participants. Student attitudinal data toward self and the program were also collected but no comparison group was used.

Arrangements are being made during the second year of the project to have adequate comparison groups for the evaluation of student outcomes.

Conclusion. Though evidence is presented of significant intended effects, the ability to attribute those effects to the project is inhibited by the small size of the comparison groups. Thus, the standard for demonstration impact has been achieved but requires additional data for support. This is expected in the second year evaluation data when more time can be given to the adequate selection of a camparison group.

2. Dissemination Activities

The dissemination activities for this project are extensive and of high quality since dissemination of the EBCE-MD program is the major thrust of the project. The program is being disseminated as a package which includes the following: project objectives; description of target audience; program operations and services delivered; expected project effects; staffing requirements including position descriptions and qualifications necessary for filling these positions; training requirements for staff, teachers, and others; required facilities; required materials; and expected operating costs and per pupil costs. In addition, instructions and forms were included for a formative evaluation and for the Brigance and SPIB.

Logs of meetings were kept which include the date, how many attended, who attended, and the result of the meeting. Records are kept of all conferences attended, articles published, and newsletters distributed. From these records, adopters and potential adopters can be identified.

Conclusion. The standard for dissemination activities has been achieved since EBCE-MD is meeting its proposed dissemination objectives and the materials contained sufficient information to facilitate replication.

3. Efforts Toward Institutionalization

The purpose of this project from the beginning has been to institutionalize EBCE-MD across the state. Institutionalization is being accomplished in several ways. First, federal law requires an Individualized Education Program (IEP) for each special education student. In IEP, educational goals and objectives are outlined for the student. EBCE-MD is written as an educational objective in the IEP. In addition, EBCE-MD is written into each AEA's year plan.

The state requires each special education student to go through EBCE-MD before going into work experience. Funds are provided for special education with weighted dollars which range between 1.7 and 2.0 of the funding allotted for a regular student depending on the severity of the student's handicap. Matching funds are provided by the LEA and the SEA. SEA funds go through the AEA. If an LEA does not have adequate funds, additional funds are provided through the AEA, thus maintaining a relatively equitable distribution across the state. In order to receive the weighted dollars, the LEA must provide EBCE-MD.

There is a shortage of Work Experience Instructors (WEI's) and trainers for the project. Efforts to have EBCE-MD incorporated into teacher training in Iowa's institutions of higher education have not been successful. However, EBCE-MD has been included in a textbook that is widely used for teacher training. Efforts are now underway to provide inservice training by the state.

Conclusion. The standard for efforts toward institutionalization is being met and there is every indication that the EBCE-MD program will be institutionalized in the State of Iowa.

B. Final Acceptable Evidence

1. Utilization

The project is in its second year of the three-year dissemination. Each year the project attempts to establish two sites in each AEA in one-third of the state. This objective is currently being met. There are 30-32 adopting sites in the state and three outside of the state.

Conclusion. The standard for utilization has been met since more than two sites are presently implementing the program in its entirety.

2. Long-term Impact

The long-term effects of the project on the students are being assessed in a five-year longitudinal study being conducted by a research team from the University of Iowa. The methodology includes measuring learner outcomes using comparison groups. The study is in progress but it is too early for any results.

Conclusion. Assessment of whether or not the project has met the standards for long-term impact must await the analysis of the longitudinal data. However, it is important to note that the data are being collected using a valid research design.

3. Continuation/Adoption Impact

The collection of data on the short-term effects of the program on students from continuing/adopting sites is part of the dissemination package and, thus, should be collected.

Conclusion. The standards for continuation/adoption have not been met at present because these data have not yet been collected. However, there is every indication that the data will be collected since they are part of the program package and required by the state.

III. CONTRIBUTION TO PROJECT SUCCESS

A. Pre-Grant Period

Extensive long-range planning at the state level during the pre-grant period was a major factor in the project's success. Prior to sending out an RFP, a statewide needs assessment was conducted among educators in which they were asked to suggest areas where they thought there was a demonstrated need. Exploratory experiences and academic assistance for mildly mentally disabled adolescents was an area mentioned by several educators. This suggested need was supported by special education data by district, county, etc.

The topics from the needs assessment went to the State Research Advisory Committee which also supported assistance for these students as a top priority. The priorities were reviewed by state level management and staff who concurred with the committee's decision.

The EBCE-MD program was presented to the State Board of Public Instruction as part of a long-range plan for mildly disabled students. Funding could be made available over a long period of time by matching federal and state funds, including funds from special education, as well as some matching LEA funds.

Following Board approval, an RFP with specifics for the project was sent out. Assistance for proposal writers was provided by the state.

In Area 5, Iowa Central Community College (ICCC) had the base which the project developed. The Iowa code states that the community college should provide assistance or training that cannot be provided by the LEA. The major responsibility still rests with the LEA, but the community college provides leadership. Area 5 had a strong special education division, and ICCC had career and vocational education expertise. The Project Director wrote the proposal with some input from state level special education personnel.

The three-year dissemination was preceded by a one-year pilot project during which the Appalachian Educational Laboratory (AEL) EBCE model was modified for mildly disabled adolescents with assistance from AEL. Throughout the curriculum development, the impact on the students was evaluated.

B. Grant Period

Since the project was well planned in advance of implementation, it began to move forward as soon as the grant was received. Below contributions to project success mentioned by those interviewed are given:

- The staff was dedicated and cooperative;
- Sufficient time was allowed for start-up. One full semester (September-December) was allowed for staffing, training, and selection of students. The project took the first students in January;
- Sites were developed incrementally across the state to allow for making improvements through experience gained.
- EBCE-MD is written into each AEA's year plan which is worked out with the LEA, then is approved by the SEA. The state requires that all special education students go through EBCE-MD before going into work experience. In order to get state money, EBCE-MD has to be included in the plan;
- Funds are provided with weighted dollars for special education students. After federal funding terminates, state and local matching funds are used. For LEA's that cannot afford their share of matching funds, the

state provides more, thus guaranteeing an equitable opportunity for special education students throughout the state;

- Federal law requires an Individualized Educational Program (IEP) for each special education student in which the students goals and objectives are stated. In participating schools, EBCE-MD becomes part of the student's IEP;

- The state legitimized EBCE-MD as an innovation which made it more acceptable to the LEAs. The philosophy at the local level is that funds should go into preparatory rather than exploratory education;

- The fact that the project is a cooperative effort among state agencies and the SEA, AEA's, LEA's, and the community has contributed to its success;

- By having several LEA's working together, the MD population can be pooled making the project feasible;

- The mechanism for the AEA - community college cooperative effort had worked well for EBCE and formed the existing base for implementing EBCE-MD;

- The time was right; and

- Considerable effort went into effective public relations.

Experience gained in the first year of implementation suggested consideration of some changes:

- The position of Learning Coordinator required so much travel that it may be best to make it a part-time rather than full-time position;

- The extent and complexity of the EBCE-MD curriculum package makes it somewhat difficult for teachers to absorb and retain the material in one concentrated workshop. The staff concluded that it may be better to present the material in stages rather than all at once and provide technical assistance on an as needed basis; and

- Originally it was thought that the AEA's could take over the inservice training. However, after one year's experience the AEA's prefer that the SEA take responsibility for it.

1. Evaluation

Three types of evaluation are being conducted in this project. First, the EBCE-MD includes an evaluation. Second, a third-party evaluation is being funded by the State Career Education Division, Third, a five-year longitudinal study is being funded by the State Division of Special Education.

The EBCE-MD package contains forms and instructions for conducting a formative evaluation. In addition, forms and instructions are included for using the Brigance and SPIB which assess student needs (pretest) and gains (posttest). This allows each adopting site to conduct its own evaluation.

Two separate RFP's were sent out from two different state level divisions for the third-party evaluation and the longitudinal study. Thus, they are being monitored by different people. Even though attempts are being made to coordinate these two efforts, some difficulties have emerged, specifically in terms of the selection and testing of comparison groups. Because of difficulties encountered in the selection of an adequate number of comparison students for the first year, the evaluation data must be interpreted with caution. Plans are underway to remedy the situation for the second year.

The third-party evaluators and the research team from the longitudinal study both provide continual input into improving the effectiveness of the project.

Unlimited resources would have affected the evaluation only minimally. However, one area where it might have made a difference was with the comparison group. Selecting the comparison group and obtaining cooperation was much more complex than had been anticipated. If the evaluators had had more time, they might have been able to more carefully specify the number of subjects to be included in each comparison group.

2. Demonstration/Dissemination

Dissemination has been an ongoing activity of the project since its implementation in June of 1978. Specific adoption sites were obtained primarily through the following process:

- The staff of ICCC conducted a meeting with the administrator and special education director of the AEA at which time project literature was distributed;
- The staff of the AEA identified schools which had the capability of implementing the program and the optimum time for implementation;
- The Superintendent of the LEA was contacted regarding the EBCE-MD program; and
- The Superintendent contacted the school board and discussed the program and the need for a long-term commitment if the program was to succeed.

The most effective strategy in the demonstration process was the utilization of the resources of the AEA in involving the LEA. One reason this seemed to be effective is that AEA's administer the state funds to the LEA's. When the LEA was aware of AEA support, they were more likely to become involved.

Dissemination accomplishments that were mentioned include:

- The development of the EBCE-MD model as a systematic procedure made it transportable. Staff can be trained to use it;
- The curriculum package is attractive and complete with all necessary materials including those needed for testing and evaluation;
- Seven self-contained modules were designed for inservice training. Training is intensive and effective; and
- The dissemination materials contain all the information that may be of interest to potential adopters, including expected effects on the target population, staffing and materials requirements, and methods for funding.

C. Post-Grant Period

This project is in the second year of the grant period.

IV. ALTERNATIVE TIMING OPTION

The AEL-EBCE model was revised for mildly disabled students in a one-year pilot project. This time frame appeared to be adequate

for this purpose. The program is being disseminated across the state in three years. Although the project is meeting the proposed time schedule, there is some feeling that four years should have been allowed for such an ambititious undertaking.

SOLAR ENERGY AND THE BUILDING TRADES

Falmouth, Maine

I. PROJECT DESCRIPTION

The major objective of this project was to develop a series of curriculum units on solar energy in building construction trades for use in a vocational training setting. This curriculum would enable students of vocational building trades to qualify for solar construction jobs by providing them with a fundamental understanding of the theoretical and practical concepts of solar energy. Administered through the state of Maine, the Maine Audubon Society, received a total of $7,850 in USOE funding. A subsequent grant of approximately $10,000 of federal funds through the State Education Agency and the University of Southern Maine was used for dissemination. The effort began in July 1978 and was completed in June 1979.

A. Target Area and Target Population

The target population for the curriculum developed by the project consists of 11th and 12th grade vocational training students enrolled in building trades programs throughout the State of Maine. Given the vulunerability of northern New England to imported oil and the severity of its winters, the need and desire for alternative energy sources and technologies is very strong in Maine. Skilled solar technicians are, therefore, a valuable resource. It was expected that the curriculum with or without modification might also be applicable to post-secondary and adult education students. Since the application of solar energy encompasses virtually all aspects of building trades, the curriculum was designed to address the needs of electricians, plumbers, masons, and carpenters. It addresses how the various, separate building trades skills come together and coordinate efforts in a solar energy undertaking.

B. Goals and Objectives

The general goal of the project is to provide students with the theory and practice of solar energy technology by integrating it into regular building trades instruction. The purpose of providing the background in solar energy is to enable students to qualify for solar energy construction job opportunities within the state.

The original project grant proposed that the curriculum be developed and formally introduced into the Portland Regional Vocational Technical Center for purposes of a field test. It

was assumed that the curriculum would be distributed through the entire State of Maine vocational training network on its own merits, by informal word-of-mouth promotion. The curriculum was definitely conceived to be a model for statewide application. A subsequent grant to the Maine Audubon Society from the University of Southern Maine provided funds specifically for disseminating the completed curriculum materials across the state.

C. Project Activities

The major project activities consisted of curriculum development, field test, and dissemination efforts. The curriculum was written primarily by one individual who wrote the original proposal and served as the initial project director. He was replaced as project director early in the project period but continued to develop the curriculum under a subcontract. A teacher at the Portland Regional Vocational Technical Center worked with this individual in developing the workshop projects, examples, and other ancillary materials. Technical and educational consultants reviewed the materials as they were being developed.

The final curriculum consists of a student text, titled Solar Concepts and a comparison volume titled Teacher Notes. The latter is designed to be used by instructors in conjunction with the student text and contains presentation techniques and examples, student objectives, unit quizzes and a final exam, student projects, and reference materials.

The curriculum is divided into 12 areas. Each unit has several specific student objectives. As they appeared in the original project proposal, the curriculum areas and objectives are:

Area One: Renewable vs. Non-Renewable Energy Sources

- Explain the solar origin of most of our energy sources;
- Define the terms renewable and non-renewable resources;
- Define and explain the significance of exponential growth;
- Explain both the national and state energy supply patterns; and
- Explain both the national and state demand patterns sector by sector.

Area Two: History of Solar Energy

- Cite examples of the use of solar energy throughout history;
- Explain the religious or social significance of the solar resource in at least one non-contemporary culture; and
- Identify and explain past and present barriers to the wide-spread use of solar energy.

Area Three: Energy Terms

- Explain the difference between energy and power;
- Demonstrate understanding of key energy terms; e.g., Btu, kWh, joule, Calorie, Watt, etc.;
- Convert from one energy or power term to another; and
- Rank energy sources on a basis of quality (i.e., electricity is a high quality energy source because it can perform a variety of tasks).

Area Four: Quantifying the Solar Resource

- Define the term "solar constant";
- Explain earth-sun relationships as they affect the solar constant; and
- Quantify the solar energy available at a particular location in Maine.

Area Five: Principles of Heat Transfer

- Define R value and complete cumulative R of various building sections;
- Define and explain conduction, radiation and convection;
- Compute conduction heat losses through a variety of building sections;
- Show relative heat losses through doors, windows, roof, ceilings, etc.
- Explain significance of proper ventilation and infiltration heat losses;
- Define "degree day" and demonstrate how it is used.

Area Six: Positive Solar Houses

- Define the concept "solar tempered";
- Differentiate between active and passive solar designs;
- Describe the basic characteristics of a passive solar house;
- Discuss relative merits of using 2 by 4 vs. 2 by 6 vs. 4 by 8 framing members; and
- Explain various foundation systems used in New England solar houses.

Area Seven: Windows as Solar Collectors

- Describe the physical process of heat loss through windows;
- Compute percent of heat loss through windows;
- Devise methods of reducing window heat loss;
- Design and build a thermal window shutter;
- Discuss the advantages and disadvantages of various insulating window curtains; and
- Design and build a window collector.

Area Eight: Thermal Mass Storage

- Define the terms thermal mass and specific heat;
- Explain advantages of various storage systems -- water vs. rocks vs. heat of fusion; and
- Discuss proper sizing and location of various storage systems.

Area Nine: Trombe Walls

- Identify the major components of a Trombe wall;
- Explain the historical evolution of this heating system; and
- Compute potential BTU output of various systems.

Area Ten: Attached Solar Greenhouses

- List major reasons for building a greenhouse; and
- Accurately cost out the construction of an attached greenhouse.

Area Eleven: Active Solar Systems

- Describe the major components of flat plate collectors;
- Discuss the various component design options, e.g., single vs. double glazing, selective surface vs. flat black paint;
- Size a collector array for a particular performance objective;
- Assess the economics of active solar space hearing; and
- Locate solar companies within the state and New England.

Area Twelve: Solar Hot Water Systems

- Adequately size a collector array given a family's particular hot water use;
- List dealers and prices of solar hot water systems conveniently available in New England;
- Conduct a life cycle costing analysis of a solar hot water system; and
- Explain the installation problems commonly associated with solar hot water systems and recommend solutions.

The curriculum was field tested at Portland Regional Vocational Technical Center. In this field test, the curriculum developer did the major part of the teaching. A pretest was given before the course began. A posttest was administered after each unit and a final examination was given following completion of the whole curriculum. Based on the teaching experience, consultant review, and the test results, the curriculum was revised as necessary.

D. Administrative Structure

The project grantee was the Maine Audubon Society, located in Falmouth, Maine, about five miles north of Portland. The Maine Audubon Society is not a regional affiliate of the National Audubon Society, but a totally independent organization with complete policy control of its own affairs and

operating funds. It does, however, coordinate with and share many of the goals and concerns of the National Audubon Society.

The Maine Audubon Society has a serious commitment to alternative energy ventures. The project director stated that the project budget was drastically under estimated, especially the curriculum development portion. He estimated that Maine Audubon added about $600 per month of its own funds or in-kind contributions into the project for the entire contract period.

The organization of the solar energy project is shown in Exhibit 6. The curriculum developer wrote the original proposal and served as initial project director. After a short time, he was replaced by a new project director but continued to write the curriculum under a subcontract. The new project director basically managed the administration of the contract.

Short-term technical and educational consultants provided direct input into the curriculum. A committee of technical and educational advisors was designated by the Maine Audubon Society to review and comment on the curriculum at several points before publication.

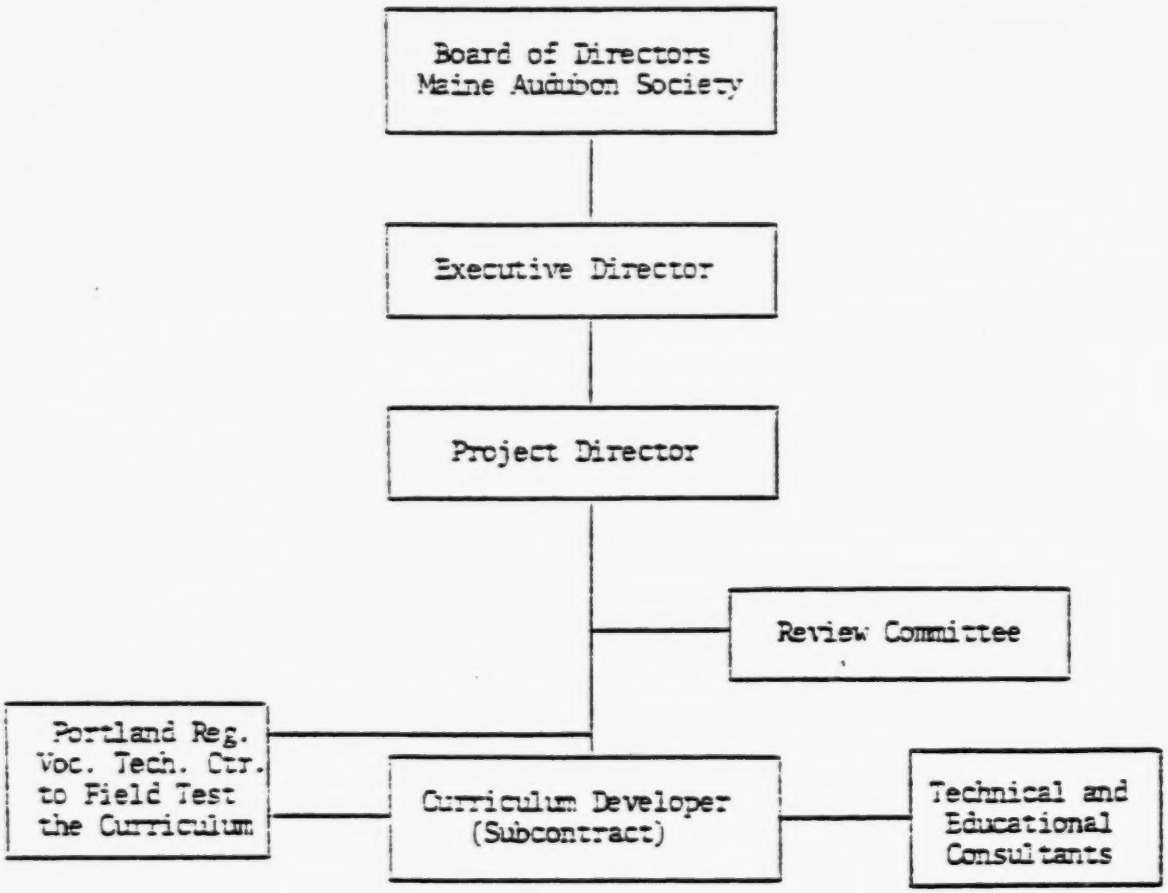
E. Dissemination Activities

The original grant did not allow for specific dissemination efforts, beyond implementation as part of a field test at the Portland Regional Vocational Technical Center. Later in the project, the SEA felt that a more ambitious and planned dissemination effort would be necessary if statewide adoption was to take place. A supplemental contract was subsequently arranged between the Maine Audubon Society and the University of Southern Maine under a university contract with the State Department of Education to pay for the printing of 1,000 copies of the curriculum text and teacher notes, the preparation of 26 sets of a slide show, and a series of five regional workshops around the state to demonstrate the curriculum and promote its potential utilization in the Maine vocational network.

The target group for dissemination of information was the state's vocational building trades instructors. Using the names and addresses in the state's vocational education directory, announcements and invitations to the regional workshops were sent to all building trades instructors and administrators around the state. A total of 103 participants attended the workshops, representing about 85 schools. Each participant received a copy of the text and the teacher notes without charge. In addition, each vocational region and each

EXHIBIT 6

ADMINISTRATIVE STRUCTURE OF
FALMOUTH SOLAR ENERGY PROJECT



vocational technical institute received a copy of the slide show. Additional copies of the text and teacher notes were available to instructors from the University of Southern Maine.

The one-day workshops consisted of a demonstration of the curriculum, together with discussions and question and answer sessions. Participants provided their own transportation and expenses to the workshops.

No formal evaluation of the impact of the dissemination workshops has taken place thus far, nor is one planned. However, informal reaction and feedback from participants has been extremely favorable, according to the project director and others who were interviewed. The feedback is generally that the curriculum is well done, practical, needed, and that the workshops were well executed.

Copies of the curriculum were sent to recognized solar experts and other influential individuals around the country to solicit comment and support. The replies shared by the project director were very favorable, a few calling the curriculum the best of its type presently available.

F. Adoptions

At the present time, there are at least four schools that have adopted the solar energy curriculum in Maine. Each of these adoptions will receive only the routine class evaluations standard for the adopting institution. The adoptions are as follows:

South Oxford Vocational Technical Institute, Norway, Maine.

Since fall 1979, an instructor in the building trades department has been introducing all but the most technical aspects of the solar concepts curriculum into the building trades courses and has been carrying out some of the solar energy demonstration projects outlined in the teacher notes. They learned of the curriculum through the regional workshops and consider it to be excellent. About forty-eight 16-18 year old students are being exposed to the curriculum.

Southern Maine Vocational Technical Institute, South Portland, Maine.

Starting summer 1979, the plumbing instructor introduced selected parts of the curriculum into his plumbing course. He feels that those parts which relate to plumbing are very appropriate and well done. He learned of the curriculum at one of the regional workshops. Sixteen junior and senior students are involved.

Eastern Main Vocational Technical Institute, Bangor, Maine.

The building construction department is about to introduce most of the curriculum into their program for building trades. It will cover about 70 post-secondary day students and 20 night, adult education students. The department learned about the curriculum at one of the regional workshops and considers it to be excellent. Other adoptions identified through this source are: Dover Foxgrove High School, Dover, Maine and Bucksport High School, Bucksport, Maine.

Westbrook College, Portland, Maine.

The author of the curriculum has been teaching the curriculum himself to about 18 undergraduate students from freshmen to seniors since September 1979. The school feels the course is being well received and plans to continue it.

II. EVIDENCE OF IMPACT

A. Interim Acceptable Evidence

1. Demonstration Impact

The curriculum developed by the Maine Audubon Society's solar energy project was divided into 12 units. Each of these units had several specific, measurable student learning objectives. These objectives were specified in the original proposal and modified to a small degree during the curriculum development process. The final student objectives appear in the teacher notes to the curriculum.

The course was field tested at the Portland Regional Vocational Technical Center. A short pretest was administered to the approximately 35 enrolled students at the beginning of the course. After each unit in the curriculum was taught, a posttest was administered to determine the extent to which the students learned the materials. At the end of the course, a final examination was given. The purposes of the testing was for pointing out weaknesses in the curriculum so that modifications could be made at appropriate place. The pretest was different from the posttests and final examination and no comparison group was tested. Although the data were not published formally in a project report, the names and addresses of the students and their test scores are being maintained and are available for examination and for further analysis.

Conclusion. Since the pretest was different from the posttests and final examination, and since no normative data or

comparison group data was available, there is no sufficient evidence of impact which can be directly attributed to the new curriculum. Thus, the standard has not been met. It would have been feasible to collect this evidence if a more formalized evaluation plan had been developed and followed and more students had been exposed to the course.

2. Dissemination Activities

The original project proposal called for the curriculum materials to be published and disseminated by the Maine State Department of Education and Cultural Services. A follow-up subcontract with the University of Southern Maine, under its contract with the State Department of Education, called for the printing of 1,000 copies of the curriculum and the teacher notes, 26 copies of a slide show supporting the curriculum and the delivery of five one-day workshops directed at secondary science teachers, vocational and industrial arts instructors and guidance counselors at the secondary and post-secondary levels.

The required number of copies of the curriculum, teacher notes and slide show were delivered in April 1979 and the five workshops were presented in May and June 1979. Thus, the dissemination objectives stated in the project plan were achieved. In addition, names and addresses of individuals attending the workshops and receiving the curriculum materials have been maintained for possible follow-up at a later date. Finally, the printed materials, slide show and workshops included sufficient coverage to facilitate replication of the program in other schools. The individuals contacted who attended the workshops could not suggest any additional materials to be included.

Conclusion. The standards for acceptable evidence of dissemination activities were met by this project since the materials provide sufficient detail for replication and the proposed dissemination objectives have been met.

3. Efforts Toward Insitutionalization

The third component of interim acceptable evidence of project success is an effort towards institutionalization of the program. The standard for acceptable evidence is the presence of such efforts.

In the original project plan, the Portland Regional Vocational Technical Institute agreed to have the solar energy curriculum field tested in their construction trades course. The school was expected to continue the curriculum if the field test proved successful. However, due to retirement and replacement of the building trades instructor, the

initiative for continuing the curriculum was lost. As a result, the curriculum developer and the institute have been applying for state grant money to provide for an instructor and for materials to continue teaching the curriculum. Funding has not been received as yet and the curriculum materials are not being used.

Conclusion. Efforts have been made to raise state funds to continue the solar energy course at the Portland Regional Vocational Technical Institute. Thus, the standard of the presence of efforts toward institutionalization has been met.

B. Final Acceptable Evidence

1. Utilization

The curriculum is not presently being taught at the Portland Regional Vocational Technical Institute. However, the curriculum has been fully or partially adopted at South Oxford Vocational Technical Institute and Southern Maine Vocational Technical Institute and is about to be introduced at the Eastern Maine Vocational Technical Institute. In addition, the curriculum developer is teaching the curriculum at Westbrook College in Portland, Maine.

Conclusion. The standard for acceptable evidence of utilization has been met even though the program is not being continued at Portland since the program has been adopted at other sites.

2. Long-Term Impact

No follow-up has been conducted on the students who participated in the field test of the curriculum at Portland Regional Vocational Technical Institute. However, names and addresses of the students have been maintained making follow-up a feasible undertaking. In fact a two-year, five-year and ten-year follow-up of all vocational graduates is mandated by the state. This follow-up consists of a mail questionnaire with telephone follow-up to collect information on employment history and relation of job to courses studied in school. A follow-up of students who were exposed to the solar energy curriculum could be combined with the two-year state-mandated follow-up.

Conclusion. Although the standard of significant intended effects which can be attributed to the project intervention has not been met, follow-up of students is feasible since records of students' names and addresses are being maintained.

3. Continuation/Adoption Impact

No evidence of continuation impact exists since the curriculum is not being offered at the field test site, the Portland Regional Vocational Technical Center. Further, no impact evaluation is currently taking place or in the planning stage at any of the adopting schools.

Conclusion. This standard of significant primary outcomes attributable to the project is not being met. However, the collection of impact data is feasible in the same manner as the collection of demonstration impact data is feasible.

III. CONTRIBUTIONS TO PROJECT SUCCESS

A. Pre-Grant Period

Strong interest in this project by both the proposal developer, who had been project director of two previously HEW-funded energy projects and the State Education Agency provided a good deal of momentum to the project before it was funded. In fact, the proposal developer at the Maine Audubon Society was specifically encouraged to submit a proposal dealing with solar energy by the SEA.

Contributions to project success taking place during the planning stage included:

- the highly technical competence of the proposal developer;
- the experience, professionalism and long-term institutional commitment of the grantee, the Maine Audubon Society, to the goals of the project;
- the specification of curriculum units and student learning objectives for each of these units in the proposal;
- the specification of a timeline for accomplishment of activities and project milestones;
- specification of a project director and key project staff; and
- the specification of an Advisory Board with broad representation to assure acceptance and appropriateness of the final product.

B. Grant Period

Initial activities during the grant period focused on the development of the solar energy concepts curriculum and the overall management of the project. The proposal developer was

the initial project director and was responsible for both the technical and management activities. Although the development of the curriculum proceeded well, management problems beset the project very soon after implementation. The Maine Audubon Society responded by appointing a new project director to carry out project management functions of coordination, communication and budget control and subcontracting the technical work, the development of the solar concepts curriculum, to the original project director. This action succeeded in solving the management problems and enabled the project to attain its objectives. This experience confirmed the Maine Audubon's feeling about the importance of good coordination, communication and working relationships to project success.

The solar concepts curriculum was largely the product of one person, who was aided by a teacher at the field test site. The quality of the product is a direct reflection of these individuals' technical skills and efforts. The other factors affecting its final form are the contributions of the technical and educational consultants who served as an advisory group and reviewed the curriculum. It is clear that the most critical factor was the expertise of the curriculum developers. However, the review and approval of materials by a workable sized group of experts is also important. These experts should review progress at several points during the development stage.

C. Demonstration/Dissemination

The original USOE grant proposal called for an implementation of the curriculum at the Portland Regional Vocational Technical Center. This implementation represented both the project's field testing effort as well as its primary effort to introduce the curriculum into the state's vocational training network. Later in the project, the SEA, together with Maine Audubon, came to the conclusion that a more ambitious dissemination plan was needed in order for the curriculum to gain acceptance across the state. A supplementary grant was made to the project through the University of Southern Maine specifically to support demonstration and dissemination of the curriculum. Specifically, the grant was used for:

- Printing 1,000 copies of the curriculum text and teacher notes;
- Assembling 26 copies of a 180-piece slide show (visual aids to the curriculum); and
- Financing five regional dissemination/demonstration workshops around the state.

The informal feedback to Maine Audubon thus far has indicated that this dissemination/demonstration design has been successful. Essentially, the workshops were successful in reaching the state's vocational/technical instructors and administrators. However, the State RCU Director felt that the workshops would have reached even more people if they had been held during school time (Monday-Friday) rather than on Saturdays.

The curriculum's excellence was acknowledged by those who attended the workshops. The curriculum filled a need in the building trades curriculum which had been demonstrated by vocational teachers' high level of interest introducing solar energy into their programs and the previous lack of an adequate curriculum.

It was felt that the reputation of the curriculum developer and information disseminator was critical to the acceptance of the dissemination effort and the eventual spread and utilization of the product. Press releases and simple information fliers sent to vocational educators were sufficient to generate interest in the curriculum and attendance at the regional workshops. These results can be attributed to the good reputation of the grantee in the solar energy field and possibly also to the small size of the State of Maine where good communication exists among vocational educators.

D. Post-Grant Period

The program has been discontinued at the host site. However, efforts are being continued to find funding sources.

IV. ALTERNATIVE TIMING OPTIONS

According to the project director, the time period for this grant was probably sufficient, but the funding was woefully inadequate. The original budget was drastically underestimated. It was also acknowledged that the subsequently developed dissemination strategy should have been made a part of the original grant as it proved to be a vital part of the project success.

FACIT: FLORIDA'S APPROACH TO COMPETENCY-BASED INDIVIDUAL TEACHING

Tallahassee, Florida

I. PROJECT DESCRIPTION

The Florida State Department of Vocational Education funded this project to develop a learning system for vocational instruction as part of its effort to provide individualized competency based education throughout the state vocational system. The Curriculum Delivery System (CDS) project received state Part C funds through Florida State University from July 1, 1976 to June 30, 1977 to design the system from the model for individualization of instruction that it had previously developed. The resultant FACIT (Florida's Approach to Competency-Based Individualized Teaching) materials were designed to be disseminated to and adopted by vocational educators and teachers across the state.

A. Target Area and Target Population

Under the Director of Vocational Education, the vocational education system in Florida is divided into five regions. Each regional office has one Regional Program Director and a Regional Program Consultant in each of eight occupational areas. Regions encompass either eleven or seventeen school districts, from 3 to 8 area vocational centers and from 3 to 7 community colleges. Vocational program staff work with counterpart staffs of the divisions of public schools, community colleges and universities in planning and overseeing vocational programs and curricula in those locations. The Florida Vocational Education System serves approximately 900,000 students in vocational and prevocational programs.

The move to convert time-based education to competency-based vocational education, of which FACIT is a part, is one that encompasses the entire state vocational education system. Since individualization of instruction is an integral part of this conversion, the target group for part or all of the system will be:

- all vocational education teachers in tax-supported educational installations;
- all vocational teacher educators and deans of Colleges of Education in the Florida university system;
- all divisions of vocational education staff members;

- selected members of the Department of Education divisions of public schools, community colleges, universities;
- district superintendents and administrators;
- principals of public high schools and junior high schools having vocational programs;
- community college presidents and deans of occupational education;
- administrators and teachers of the Department of Offender Rehabilitation; Division of Youth Services; special education centers; private secondary and post-secondary schools; universities and colleges; and public and private non-educational institutions who are involved with vocational education; and
- vocational guidance personnel and curriculum coordinators.

B. Goals and Objectives

The goal of the FACIT project was to develop and field test a modularized, individualized, multi-media learning system designed to produce vocational instructors competent to implement and manage a totally individualized curriculum delivery system. A competency-based learning system designed to train vocational instructors in the individualization skills needed in a competency-based setting was the major product of the project.

The following objectives guided the development and validation of the learning system:

- analyze the Florida Curriculum Delivery System (CDS) Model and its components, to determine instructional objectives in performance terms and to develop criterion-referenced measures to assess individual mastery of those objectives;
- review, select, and adapt existing instructional materials to match performance objectives following the CDS model procedures;
- develop new instructional materials determined to be needed, using the analysis, media selection and instructional-strategies procedures of the CDS model;
- formatively evaluate and revise adapted and developed instructional materials in both individual and small-group tryouts;

- develop an instructor's manual to ensure effective transportability of the learning system to a wide inservice/preservice population in the State of Florida;
- produce a validated learning system for use in in-service and preservice training programs of vocational teachers as they individualize instruction. (Validation will be conducted with vocational teachers of secondary, post-secondary and special-needs students.); and
- develop and begin to implement a plan for dissemination and diffusion of CDS products and process within the State of Florida.

C. Project Activities

This project was basically a system and materials development effort. It was to be a precursor to a larger effort to diffuse and disseminate the system in order to redirect the approach of vocational education in Florida from time-based to competency-based education.

In the effort to develop the learning system, a team of instructional designers worked with practicing vocational teachers and teacher educators to determine the competencies and objectives of the system, to determine the context of the instructional materials and to formatively evaluate the instructional materials. In addition to developing the learning system the project staff designed and constructed several workshops and presentations to disseminate information on the learning system.

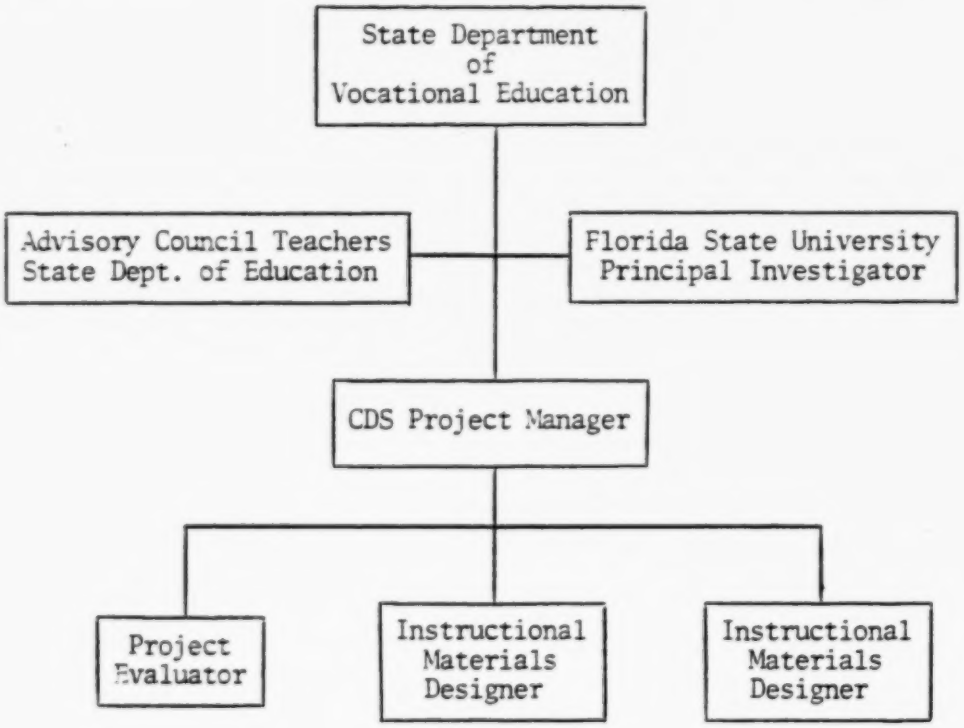
D. Administrative Structure

The basic administrative structure of FACIT project staff is depicted in Exhibit 7. During the course of the project, the nature of the workload required the hiring of additional editors/staff. These additional personnel were paid by the state rather than by FACIT project funds.

The State Department of Vocational Education, which funded the project, maintained significant control and direction to ensure that the resultant system and materials fit the state needs. The state staff provided support in identifying master teachers to work with the CDS project in materials development and the organization of workshops and inservice training session to introduce competency-based education and the FACIT system.

EXHIBIT 7

ADMINISTRATIVE STRUCTURE OF FACIT PROJECT


State Department of Vocational Education
Advisory Council Teachers State Dept. of Education
Florida State University Principal Investigator
CDS Project Manager
Project Evaluator
Instructional Materials Designer
Instructional Materials Designer

The Florida State University provided the facility, administrative and clerical support for the FACIT project. The principal investigator served as a liaison between project staff and the university, provided management support, delivered dissemination workshops to teacher educators and provided substantive input from the perspective of teacher educators.

The CDS project manager was responsible for substantive direction and day-to-day management of project activities and staff. He worked closely with state staff in monitoring the outcomes of project activities and worked with project staff to assure accomplishment of requisite tasks.

The advisory council provided a mechanism for discussion and review of project tasks and accomplishments. It was composed of teachers involved in development, state department of education officials and practicing vocational education teachers. From project reports and interviews, it appears that the advisory council did not play a formal or significant role in the project.

The project evaluator was responsible for the formative evaluation of project materials. He worked with the participant teachers in setting up training and evaluation sessions, in helping them utilize materials and in obtaining their evaluative comments and suggestions for improvement. He worked with the instructional designer in meeting the concerns and needs identified by the teachers.

The instructional designers were responsible for materials design and development for ensuring continuity and comparability of units and for revising materials.

E. Dissemination Activities

Since the project was primarily a materials and system development effort, the proposal did not include a detailed dissemination plan. However, it was proposed that a dissemination plan be developed and preliminary dissemination activities be initiated.

FACIT staff conceived that dissemination of materials should be carried out in a multi-tiered program, meeting the needs for information and skills of a hierarchy of levels of personnel including:

- state staff;
- five regional directors;
- consultants;

- teacher educators; and
- teachers.

During the course of the FACIT project a separate project was developed and funded by the state to plan and carry out the dissemination and diffusion of the FACIT materials.

The plan for this project included the following activities:

- awareness presentations to state and local vocational staff;
- awareness articles in Florida education journals;
- staff development, inservice/preservice classes and workshops;
- summer and annual vocational workshops;
- institution of FACIT materials into inservice and preservice educational methods courses for vocational education;
- development of Master Plans for teacher inservice training on FACIT modules;
- development of supplemental materials;
- development of demonstration centers for evaluation/dissemination;
- dissemination to vocational educators in non-public institutions; and
- efforts will be made to require training in individualized, competency-based instruction for vocational teacher certification.

F. Adoption

Since the purpose of the FACIT project was to develop materials, dissemination for adoption was not a major thrust. However, interviews with five of the teachers who were included in the development process indicated that four are using adaptations of the FACIT system. The fifth, a teacher educator, is not using the system in the classroom but does present it as a teaching option.

II. EVIDENCE OF IMPACT

The FACIT project was used to assess the practicality of the criteria, standards, and documentation as outlined in the interim final acceptable evidence of the monograph.

A. Interim Acceptable Evidence

1. Demonstration Impact

The FACIT project is the materials development phase of a larger effort. It is progressing to statewide dissemination without a demonstration phase as defined in the monograph. The dissemination plan makes provisions for the evaluation of the effectiveness of the project products, but the plans have not yet been formulated. If the curriculum development-demonstration-dissemination model were followed, the next step would be to demonstrate and evaluate the impact of the program in a few select sites before disseminating it statewide.

Methods for assessing the impact of a FACIT demonstration were discussed with the project director. Since the major purpose of FACIT is teacher training, teachers were defined to be the target population. Plans for training teachers include inservice and preservice training. Thus, several methodologies for assessing the impact of FACIT on teachers are possible using control or comparison groups, depending on the setting. However, the ultimate success of FACIT should be evaluated in terms of improvements in student performance.

Evaluation of teachers should include cognitive, affective, and behavioral measures. Short-term cognitive and affective changes can be evaluated using the pretest-posttest format and control or comparison groups as teachers enter and complete the FACIT instructional program. Research questions could focus on increased knowledge concerning competency-based individualized teaching and changes in attitudes. Control or comparison groups could be used to assess whether changes were due to participation in the FACIT program or some other reason, such as another intervention. These measures of impact would be the easiest to obtain, but would not provide an assessment of changes in teacher behavior and its ultimate impact on student performance.

Much of the research assessing the impact of teaching methods on student performance in demonstration projects is done by utilizing teachers' self-reports of levels of use and correlating the outcomes with student test scores. In most cases, no significant differences are found between students

exposed to the new teaching method and controls. Researchers speculate that the findings of non-significant differences result from the inability of the measurement instruments to detect processes in the classroom which impact on student performance. For this kind of data, teacher-student interaction should be observed on a regular basis in the classroom during which time the evaluator can identify and document the behavior relevant to the FACIT program as well as assess student performance. Sample research questions could be: Do teachers use objectives? How do they use them? Do students see the objectives? Do they understand them? Do students use materials appropriately? Is there a significant improvement in student performance that can be attributed to the FACIT method? How much time is spent in individual training? How much do students help each other?

An example of a procedural approach for classroom observation would be to have trained research assistants, perhaps graduate students, observe and document classroom interactions in a sample of FACIT and non-FACIT classrooms monthly during a school year beginning in September. This methodology would provide adequate time for the collection of baseline data and a series of observations.

Although observing classroom processes will not guarantee that improvements in student performance will be detected or that they can be attributed to the new teaching method, this methodology will afford a more sensitive measure than the self-report approach commonly employed.

Conclusion. Although Demonstration Impact data were not collected in the project, it appears that with some planning, data could be collected. In order to meet the standards set forth in the interim acceptable evidence, project effects on teachers and students would have to be assessed using a statistically reliable research design.

2. Dissemination Activities

The dissemination plan for this project is extensive and includes dissemination objectives. The plan calls for the systematic identification of several administrative levels of school personnel and potential users to which appropriate dissemination activities will be geared. Since dissemination materials have not yet been developed, their quality could not be assessed.

Conclusion.

The dissemination plan that was reviewed is expected to be revised prior to implementation. Since the dissemination plan has not been implemented, comments are necessarily

limited to the plan and, therefore, cannot address the application of the standards. The extent and approach of the dissemination plan reviewed are good and meet the standards of the interim evidence. However, there may be some advantage in implementing the plan in stages across the state rather than all at once. The use of an incremental approach would provide an opportunity to maximize impact by decreasing inefficiency as the disseminators improve their strategies from experience gained in acutal implementation. Using this approach, dissemination would be implemented, evaluated and completed in, for example, one region of Florida using the hierarchical strategy outlined in the plan before it is applied to other regions of the state.

3. Efforts Toward Institutionalization

The purpose of this project was to assist Florida teachers in converting from a time-based to a competency-based approach to vocational education. Besides the commitment of the state to institutionalizing competency-based teaching, the dissemination plan is designed to promote institutionalization by focusing on all the relevant target groups at various levels in the state, by providing preservice and inservice training to teachers and teacher educators and by integrating the FACIT system with V-TECS and the Ohio State competencies, among other things.

Conclusion. The dissemination plan includes efforts toward institutionalization and, thus, if followed would meet the standards of the interim acceptable evidence. However, the probability of institutionalization would be strengthened if mechanisms for the periodical updating of the FACIT materials and long-term preservice and inservice teacher training were provided.

B. Final Acceptable Evidence

1. Utilization

Assessing the extent of utilization of the FACIT system is premature at this time since it has not yet been systematically disseminated. However, several teachers and teacher educators who were involved in the curriculum development are presently using the FACIT system and know quite a few others who are. Four of the FACIT users were interviewed by telephone and all stated that they prefer this approach to the time-based system of teaching.

Conclusion. Though the FACIT system has not yet been disseminated, it is anticipated that it will be fully continued and adopted in other sites, thus meeting the standards for extent of utilization. Meeting the standards for adoption

will be helped if adoption of the total package is encouraged and adequate technical assistance is provided following in-service training to reinforce its proper usage.

2. Long-Term Impact

The long-term impact of the project on the teachers and students has not been assessed. Since there are plans for the Evaluation Section of the State Department of Education to evaluate the effectiveness of the program over two full school years, some provisions for follow-up of students could be made. However, development of an evaluation plan is contingent upon implementation of dissemination which has not yet begun.

Follow-up of teachers and students could be integrated into an evaluation plan which would encompass the methodologies discussed under "Demonstration Impact". Since a five year follow-up of vocational education students is usually conducted, extra effort could be made to interview and compare students who participated in FACIT programs with those who participated in the regular time-based programs.

Conclusion. To date, the FACIT Project has not collected long-term impact data and it appears that there are no plans for this type of measure of effectiveness at this time.

3. Continuation/Adoption Impact

As with some of the other criteria, documentation of continuation/adoption impact is premature since the FACIT system is awaiting dissemination. It appears that adequate data could be collected for this type of evaluation using the methodologies discussed under "Demonstration Impact."

Conclusion. As yet, the standards for the continuation/adoption impact criteria cannot be applied.

III. CONTRIBUTIONS TO PROJECT SUCCESS

A. Pre-Grant Period

Florida's commitment to developing a competency-based vocational education system initially was translated into a project to develop a teacher's guide to individualizing instruction within a competency-based vocational education (CBVE) program. The Curriculum Delivery System (CDS) project was funded to undertake this preliminary project. Once the product of this project, Delivering Competency-Based Vocational Education, was completed state vocational and CDS project staff became aware that

curriculum materials were needed to train vocational instructors in implementing the components of the guide. Thus, a proposal was written to obtain state Part C funding for the development of those materials.

The commitment of the state staff in the development of this project during both the initial planning and implementation was seen as being crucial to the ultimate accomplishments of the project and will be a major factor in the success of its dissemination.

Some of the problems that arose during the grant period can be traced back to the pre-grant planning and proposal development. The proposal was too ambitious in the scope of project activities. As initially conceived, it was to have been an 18 month effort and would have included a large field trial of the materials outside of the State of Florida. As funded, the project was reduced to 12 months, eliminating the large field trial. Even with the reduction in scope, the remaining activities proved to be too time consuming to be accomplished within the year at the proposed staffing level. Additional staff provided by the state reduced staff workloads but were not effective in keeping materials development on schedule.

An additional problem of the proposal was that the materials development process and ultimate outcomes were only vaguely defined. Staff proposed to adapt available materials into the CDS system. However, during the project, no suitable materials could be identified and staff had to develop new materials.

B. Grant Period

A major contribution to the project accomplishments during implementation was the involvement of the 50 master teachers in the development process. Teachers became not only aware and interested in the project objectives but committed believers in the role of CBVE and advocates of the FACIT materials. They also provided invaluable input into the development of the materials.

Staff reported that the impact of the project could have been significantly improved had the teacher educators been involved in a similar fashion. Staff belatedly realized that the prime target of the system should have been teacher educators. Thus, teacher educators should have been involved in the development both substantively for input and tactically for support. Staff believed that it is necessary to not only involve the target audience in development, but also to let others know that they were involved in order to lend credibility to the project products.

State support of the project was evidenced during the implementation phase by the active role played by the state project monitor in the project planning and direction. Further, the state funded the positions for additional project staff when it was realized that the project workload was too great for the proposed level of staffing.

Florida State University's Center for Career Education which was the recipient of the grant provided an administrative structure for the project. The center also provided editorial, graphic, and clerical support for the project staff.

Evaluation

Since the FACIT project encompassed only the development phase of the materials, no summative evaluation was possible. One of the project's strengths was reported to be the formative evaluation that was carried out on the materials in their development. Materials were continually tested, critiqued and revised. However, the project evaluator reported that often his formative evaluation data was not incorporated in project planning because of the length of time required to collect and analyze it and the shortness of the project. The project could not afford to wait until evaluative data were collected and analyzed before moving on to complete materials. He also felt that his position within the project (rather than outside or at state level) did not provide him with enough leverage to ensure that formative data be properly incorporated into project direction.

Demonstration/Dissemination

Only minimal dissemination occurred during the FACIT program since this year was the materials development phase. Workshops were given to familiarize state, district, consultants and teacher educators to the CBVE concept and to the preliminary FACIT materials.

Staff identified six components of a future dissemination system that they believe would be most effective in influencing potential adopters. They are:

- inclusion of the target audience (as discussed above);
- the development of a multi-tiered concept of dissemination;
- provision of multi-tiered workshops where level of information and skills are matched with the level and needs of workshop audience;
- identification of a variety of sites for demonstration; within those sites a variety of support systems and levels of support should be examined;
- phasing out of support after an appropriate implementation period; and
- examination of the materials in a "worst possible case" situations where sites have little additional information or support. Results would indicate the problems and successes of adopting materials without a support system. Information may be obtained on the type of sites or individuals that are likely to succeed in such situations and possible ways to guard against failures.

C. Post-Grant Period

FACIT materials are still in the development phase and will be disseminated and implemented upon completion.

IV. ALTERNATIVE TIMING OPTIONS

Staff concurred that a demonstration-dissemination project required a five to six year funding cycle in order to confidently demonstrate effectiveness. The length of the initial development phase would be dependent on the nature of the materials or system being developed. Staff projected that a three year development phase of a system such as the one developed by CDS would be necessary. A three year development of FACIT materials would have included a large group field trial to determine:

- whether materials teach what they were developed to teach;
- whether teachers are able to transfer that knowledge/skills to classroom situations; and
- whether a change in teacher behavior affects student learning.

Dissemination would begin after the development phase and would require three years in order to confidently assess the impact of the project.

PREFERRED LEARNING STYLES OF VOCATIONAL EDUCATION STUDENTS

Appleton, Wisconsin

I. PROJECT DESCRIPTION

In the Spring of 1972, the Assistant Director for Instructional Services at Fox Valley Technical Institute (FVTI) and the Acting Director of the Center for Vocational, Technical and Adult Education at the University of Wisconsin - Stout jointly developed a proposal to study the relationships between learning styles and the acquisition of technical skills and knowledge. The proposal was submitted by FVTI to the Wisconsin Board of Vocational Technical and Adult Education and was subsequently funded. The project ran for three years (July 1972 to June 1975) and led to the development and implementation during the third project year of a cognitive style mapping system. This system allows instructors to individualize instruction by matching the presentation of materials to a student's preferred learning styles and strengths. Over a three-year period, FVTI received a total of $140,000 in USOE funding which was administered through the Wisconsin Board of Vocational, Technical and Adult Education. In addition to this total, a matching amount of between 5-10% was contributed in local and state funds.

A. Target Area and Target Population

The grantee, the Fox Valley Technical Institution (FVTI) is located in Appleton, Wisconsin. Appleton is situated on the edge of Lake Winnebago in eastern Wisconsin about 100 miles north of Milwaukee. It is one of seven communities joined by the Fox River which are known as the Fox Cities. The Fox Cities represent the third largest metropolitan area in the state. It is the center of the state's paper manufacturing industry and adjacent to some of the state's most valuable farmland.

FVTI serves a population of 341,660 in the counties of Outagamie, Waupaca, Waushma, Winnebago, and Calumet plus portions of others. The school currently offers 29 two-year technical programs leading to associate degrees. In addition, it offers vocational programs in 21 fields. These are also two-year programs and are designed to prepare students for skilled occupations. As compared with the technical programs, the vocational programs have less emphasis on theory and more emphasis on manipulative skill. The school also offers a number of apprenticeship programs. During 1977-78, FVTI had an enrollment of 5,274 students in full-time programs. Another

31,227 students participated part-time in adult vocational programs throughout the district.

B. Goals and Objectives

The major emphasis of the project was to determine whether matching students to a preferred learning style and individualizing instruction based on that style would be beneficial to students. Research during the first two project years showed that matching students in this manner increases student learning. Based on this analysis, a computer-based cognitive style mapping system was developed and implemented during the third project year. The specific project objectives proposed for the three years were as follows:

First Year Objectives

- to identify learning styles relevant to vocational technical programs;
- to develop instruments to measure students' learning style(s);
- to develop instruments to identify the characteristics of learning materials and modes of instruction;
- to construct alternative learning experiences based on each style of learning for several sets of objectives;
- to determine the interaction between learning styles and the characteristics of learning experiences and modes of instruction;
- to develop a computer-based management system to determine the type of learning experiences appropriate for the student, presenting the learning experience, and evaluating the results; and
- to construct an information system to provide feedback to teachers on the progress of their students and to suggest alternative experiences for the students.

Second Year Objectives

- to identify the learning styles relevant to vocational technical programs;
- to develop an ideal individualized learning model based upon on-going learning styles research of FVTI;
- to validate and evaluate the learning model via a jury of experts;

- to construct alternative learning experiences using the model based on each style of learning;
- to determine the interaction between learning styles and the characteristics of learning experiences and modes of instruction;
- to develop a computer-based management system to determine the type of learning experiences appropriate for the student;
- to construct an information system to provide feedback to teachers on the progress of their students and to suggest alternative learning experiences for the student;
- to revise the model based upon the results of a field test; and
- to expand the use of the model to other vocational technical areas.

Third Year Objectives

- to identify the learning styles and preferred teaching styles of all incoming FVTI students via alternative forms of learning styles instruments;
- to identify the learning styles and teaching styles of selected Fox Valley Technical Institute faculty;
- to identify the reading level and/or style of the curricula materials;
- to match the learning style and preferred teaching style of selected students with the content, media, learning environment and teaching styles via alternative forms of matching;
- to assess the impact of matching;
- to implement the ideal personalized Educational Program Model which provides for diagnostic testing and the providing of alternative forms of learning to meet a given objective;
- to revise the computer based management system for determining the type of learning experiences appropriate for each student; and
- to revise the information system designed to provide feedback to teachers on the progress of their students and the suggesting of alternative learning experience.

C. Project Activities

The first two years of the project were spent in research in the area of preferred learning styles of vocational students. During the first year, the following activities were accomplished:

- a comprehensive literature review was completed which resulted in a matrix of different learning styles;
- instruments were prepared to measure the major dimensions of learning styles: concrete/symbolic and structured/unstructured;
- data were collected from instructors on attitudes toward individualized instruction, characteristics of learning materials, and modes of instruction;
- models for individualizing instruction were prepared and critiqued;
- a workshop was held to guide teachers in developing alternative learning experiences for meeting a given objective; and
- variables for a computer-based management system were identified.

Activities during the second year focused on determining whether learning can be more fully enhanced by employing instructional treatments differing in design and use as a function of learning characteristics and styles. Subject matter areas which represented distinctly different learning situations were selected and students' preferred learning styles and learner characteristics were matched with curriculum content, mediation, learning environment and teaching style. The impact of the "match" was assessed with achievement tests, grades, and skill performance. Results showed a positive correlation between degree of match of the elements of student and instructor learning styles and student performance.

Based on these results, the Fox Valley Technical Institute, at the start of the third project year, decided to proceed with the implementation of a comprehensive personalized approach to education. Thus, a cognitive style mapping program was implemented based on a system developed by Oakland Community College in Detroit, Michigan. That system was developed for a liberal arts program and FVTI adjusted it to fit a vocational education model. According to project literature, cognitive style mapping...

"is a prescriptive approach to classroom management that can be used on a day-to-day basis by both students and teachers....The system utilizes a computerized inventory process to determine 27 achievement and personality components that make up a person's perferred style of learning....The result is an individualized educational prescription being available for each student."

D. Administrative Structure

The overall management of this project was assigned to a project director who was hired from outside of FVTI. He remained director for the first two years of the project, reporting to the Administrator of Instructional Services at FVTI who had developed the project proposal. The project director's staff consisted of a secretary/research assistant. In addition, during this two-year period, a subcontract was let to the University of Wisconsin - Stout to carry out a portion of the research. This subcontract was directed by the Acting Director, Center for Vocational Technical and Adult Education at Stout, who helped develop the original proposal.

During the third year of the contract, as the research phase of the effort was concluded, another individual took over as director of the project. It was during this period that the cognitive style mapping system was adopted from the system used at Oakland Community College. During this time, the project utilized various staff within FVTI, such as computer specialists, to develop and operate the computerized segment of the mapping system.

E. Dissemination Activities

No specific objective for disseminating the results of this project was ever formalized, except for the delivery of 25 copies of a final report which the SEA distributed around the state. Thus, with this exception, dissemination efforts have tended to be unstructured and personal. Efforts have consisted of such things as summaries of the project findings in academic publications and conversations with colleagues at national and regional workshops and conferences. By far the most extensive dissemination activities have consisted of responding to inquiries originating outside the project. The project director has made a number of presentations and conductd workshops in response to outside inquiries. A comprehensive slide/tape show was developed to aid in these presentations. The director is also presently teaching a course in cognitive style mapping at the University of Wisconsin - Stout.

F. Adoptions

A number of schools around the midwest have adopted the cognitive style mapping system as developed by FVTI. Five of these adoptions are as follows:

Vocational Technical 916
White Bear Lake, Minnesota

Cognitive style mapping is available on a voluntary basis to all departments at this school.

Vocational Technical 916 staff became aware of the program through an inservice workshop. Staff presented the program to their administration who agreed to adopt it. The program was initiated in the summer of 1977 for high school and post high school students. Since then about 70% of the 1,800 post high school and 1,000 high school students have been served by the program.

No additional funding is necessary to implement the program. However, funds are presently being sought to evaluate it.

Staff indicated that inservice training of one week by the project director would be the most effective strategy for adoption.

Hawkeye Institute of Technology
Waterloo, Iowa

This school adopted cognitive style mapping on a voluntary basis after staff who attended an inservice workshop recommended it to the administration. A small start-up grant was obtained from the State Department of Public Instruction for use in mapping students in the vocational technical fields. Departments that have exercised their option to adopt the program have adopted it in full.

The program has been in operation for two years and has served 750-1,000 students who were enrolled primarily in Adult Basic Education, health and agricultural/natural resources programs.

No formal evaluation has been undertaken. Informal feedback indicates that the program has been successful where implemented.

Staff felt that the slide show and the extensive inservice training provided by the demonstration staff facilitated the adoption.

Milwaukee Area Technical College
Milwaukee, Wisconsin

For the past four years, cognitive style mapping has been an option at this school. It is most commonly used in the skill rather than academic departments and has been provided to approximately 2,000 students.

Interpretation of mapping results is left entirely to the instructor. The school administrator approved and made the program available as an option after instructional staff attended an inservice training session. Various components of the program have been adopted by various departments. No additional funding is necessary. No formal evaluation has been developed.

Staff believed that formal publication and word of mouth dissemination are the most effective dissemination strategies.

North Central Technical Institute
Wausau, Wisconsin

Cognitive style mapping was made available on an optional basis at this school in August of 1979. North Central is using the short inventory form of the system because staff feel they do not have sufficient information at present to properly implement some sections. About 259 apprenticeship, mechanical and electronic technician students have been mapped so far.

The program was made an option to all departments by the curriculum design specialist. Most departments that have adopted it are using the majority of the components. Staff feel that if they had had more complete instructions, they would have implemented more components. Staff were aware of the following additional adoptions:

- Marine Park Technical Institute
- South Western Wisconsin
- District I Vocational Technical

Lakeshore Technical Institute
Cleveland, Wisconsin

After becoming aware of the program through the project director, this school has been studying it with a view toward adoption in the spring of 1980. If adopted, the mapping program would be applied to all students, about 4,500 per year. The decision will be made by the school's developmental committee composed of both administrative and instructional staff.

II. EVIDENCE OF IMPACT

Each component of the interim and final acceptable evidence is discussed below in terms of the experience of the Fox Valley project.

A. Interim Evidence of Project Success

1. Demonstration Impact

In discussing the feasibility of an impact evaluation with the project director, it was learned that the cognitive

style mapping system was developed after an extensive literature review and research into preferred learning styles of vocational education students. This research was conducted over the first two years of the project. Results showed that matching students to a preferred learning style increases student efficiency and grade point averages. Based on these results, a cognitive style mapping system was developed and implemented during the third project year.

No specific, measurable student objectives were stated in project proposals or reports. Similarly, after implementation of the system no formal evaluation of the impact of the cognitive style mapping on students was ever conducted. Thus, the standard for demonstration impact was not achieved.

The project director agreed, however, that evidence of demonstration impact could be collected if required by a funding agency or if stated as a program objective. Criteria for assessing impact on students could include attrition of students, scores on achievement or competency-based tests, teacher ratings, and grade point averages. Pre- and post-measures could be obtained and comparison groups of the students not mapped could be used to assess differences between those who were mapped and those not mapped.

Conclusion. Although evidence of demonstration impact was never collected, it is feasible to collect such data if made a program priority.

2. Dissemination Activities

Dissemination of information was not a formally stated project objective. Thus, the achievement of an objective cannot be measured. However, several information brochures or papers were developed and sent to organizations and individuals on request. A second dissemination strategy consisted of making presentations about the cognitive style mapping program at other institutions and to visitors to the Fox Valley Technical Institute. These presentations included a comprehensive slide show which was developed to acquaint people with the program. Information including discussions of project objectives, target audience, program operations and activities, staffing requirements, staff training, materials and facilities and expected costs was disseminated on request. The program staff did not specifically attempt to promote the program unless an indication of interest came first. Names and addresses of individuals and organizations that were sent information were maintained so that a follow-up is possible to determine extent of adoption.

Conclusion. The information disseminated included sufficient details to facilitate replication of the program. Thus, the first part of the standard was met. Since the project did not specify a measurable objective with respect to dissemination activities, the attainment of the standard requiring achievement of objectives is not possible. However, the records which were maintained of organizations and individuals reached provide sufficient information to assess results of dissemination had an objective been specified.

3. Efforts Towards Institutionalization

After two years of research, Fox Valley Technical Institute decided to implement a cognitive style mapping system. Implementation began in July 1974 with 50% federal funding and 50% school funding.

Conclusion. The standard of presence of efforts toward institutionalization was met as the school committed itself to the cognitive style mapping system by allocating local funds for its implementation.

B. Final Evidence of Project Impact

1. Utilization

The cognitive style mapping system is being continued at Fox Valley Technical Institute. Thirty-two of the 45 departments in the school are using it. The system is being operated using regular school funds. The system has also been adopted at least four other institutions. These are North Central Technical Institute, Wausau, Wisconsin; Milwaukee Area Technical College, Milwaukee, Wisconsin; Hawkeye Institute of Technology, Waterloo, Iowa; and Voc-Tech #916, White Bear Lake, Minnesota.

Conclusion. The standard for utilization has been met since the program is being continued at the present site and has been adopted by others.

2. Long-Term Impact

No follow-up has been planned or implemented specifically for determining long-term effects of the cognitive style mapping system. Names and addresses of students mapped have been kept and are available for possible follow-up, however.

The school undertakes a regular follow-up in October of all students who left the school in the previous year. This

follow-up is mandated by the state and collects data on employment history and relationship of job to training received at school. In addition to this, a five year follow-up is currently being planned. Both these efforts could be expanded to assess effects of the cognitive style mapping system.

Conclusion. No follow-up of program effects is currently being conducted and, therefore, no data exist to assess whether the standard for significant intended program effects has been met. Follow-up is feasible, however, and could be implemented as part of the regular school follow-up effort.

3. Continuation/Adoption Impact

Although the cognitive style mapping system has been institutionalized at Fox Valley Technical Institute, no formal evaluation is being conducted to assess its effects. Similarly, no impact evaluations have been conducted at adopting sites.

Conclusion. Since no data are being collected, achievement of the standard for continuation/adoption impact cannot be assessed.

III. CONTRIBUTIONS TO PROJECT SUCCESS

A. Pre-Grant Period

The Research Coordinating Unit Director at the State Board of Vocational, Technical and Adult Education became intrigued with the idea of learning styles and suggested that Fox Valley Technical Institute develop a proposal in that area. However, no planning grant was awarded. The development of the original proposal was the joint effort of the Director for Instructional Services at FVTI and the Acting Director, Center for Vocational, Technical and Adult Education at the University of Wisconsin - Stout. FVTI was later awarded the grant and the University of Wisconsin - Stout was given a subcontract to carry out a portion of the project research. At this time, the project was mainly a research effort; cognitive style mapping was not envisioned. According to those interviewed, the most important contribution to the success of the project during the pre-grant period was the persistence in obtaining a qualified project director.

Another important contribution to project success was the development in the proposal of specific, realistic, and measurable project objectives and time tables for achieving them.

Specifying activities for achieving objectives was also considered important.

B. Grant Period

Although the project staff during the first two years was very modest, a director and a secretary/research assistant, the project had wide and solid administrative support at FVTI and at the University of Wisconsin - Stout which had been subcontracted for a portion of the research. The project director feels that this administrative support was crucial to the project's success. The support was obtained in part by a concerted effort to educate and inform the administrative and instructional staff. This activity took place at planned in-service training workshops. The project director feels that involving even a larger number of influential people could have yielded even greater success. A particularly important factor in project success was the involvement and training of the instructional staff and others who will be affected by the project. Another important factor in project success was budget flexibility - the ability to move line items around as necessary within a budget.

Evaluation

To date, no evaluation has taken place of the project's central assumption that students whose instruction is matched to their preferred learning styles will achieve greater success than unmatched students. Should an evaluation be planned in the future, the project director suggested that the following criteria could be used to assess impact:

- student attrition;
- achievement tests;
- teacher ratings;
- grade point average; and
- competency based test scores.

In addition, the use of pre and posttests and comparison groups would be possible.

Demonstration/Dissemination

Dissemination was not a specific objective of this project. As a result, dissemination has tended to be informal and unstructured. Many of the adopting schools heard about the cognitive style mapping through personal and professional relationships with project personnel, particularly the project director.

When requests were made by schools for program information, the project staff provided very extensive support and training. This normally consisted of the project director visiting the requesting school and holding inservice workshops and follow-up visits. Demonstrations were also held at FVTI. A slide/tape show developed to acquaint people with the cognitive style mapping system was very helpful.

C. Post Grant Period

The project is continuing at the host site and at adopting sites. There are no plans for further evaluation.

IV. ALTERNATIVE TIMING OPTIONS

The federal funding portion of the project was conducted over a three year period, with the first two years for research and the third year for implementation. As an alternative, the project director suggested one or two years of research, followed by one year for program start-up and another year for full implementation. The original proposal developer suggested that three years is sufficient time to judge the success of a project. In fact, some need less time. Timing should depend on the type of project being implemented.

SUMMARY AND IMPLICATIONS FOR THE MONOGRAPH

Eight projects were selected to validate the monograph that DA is developing for USOE which addresses improving and measuring the effectiveness of vocational education demonstration projects. The validation process involved the systematic collection of relevant data from project documents and interviews with key individuals. The results of the validation process indicated that the monograph is practical and useful and that the criteria and standards specified for acceptable evidence of project success are feasible. This was probably due to the extensive literature/materials review upon which the monograph was based as well as the constructive criticism it received from two very helpful panels of experts before it was taken into the field for validation. However, some changes were made in the monograph due to findings from the case studies. A summary of these findings and their implications for the monograph is presented below.

The eight vocational education demonstration projects that were chosen for the validation process were geographically dispersed across the country. Four of the projects were federally administered and four were administered by state education agencies. Due to the U.S. Commissioner's priority, the four federally administered projects demonstrated modifications of existing career education program models which utilized the three year time frame assumed in the monograph. The thrust of the state administered projects was to develop and field test curriculum models in a variety of areas that are compatible with a particular state plan prior to statewide dissemination. The time frame for these projects ranged from one to three years. The areas covered were: (1) individualized competency-based education, (2) preferred learning styles for vocational education, (3) solar energy in the building trades, and (4) experienced-based career education for the mildly mentally disabled.

The method by which the funds are administered was an important factor in the project's success, as defined by the interim and final acceptable evidence presented in the monograph. This is discussed further throughout this section. The evaluation procedures used by the projects, particularly, had implications for the valid documentation of the interim and final acceptable evidence. For example, five of the projects had third-party evaluators. The three that did not were state administered. Although these last three projects were modifying or developing curriculum systems in much the same way as the others, they relied on a formative evaluation of the curriculum materials using data from teachers and consultants. By contrast, those projects that used third-party evaluators assessed the impact of the curriculum on the students which is an important part of the type of documentation needed for the interim and final acceptable evidence.

The management of the projects was fairly good considering that many of the persons involved in management had not had significant

management training. The different projects did different things well and, conversely, had different weak areas. These variations in strengths and weaknesses were revealed in the management plans. For example, some projects stated their objectives and the activities related to the objectives in terms that could be used to manage and evaluate the project. Others were not as well stated or organized and would have made collection of the interim and final acceptable evidence somewhat difficult.

There was not much use of management tools such as timelines, networking, and personloading charts. Some organizational charts were a combination of the administrative structure of the project and a flow chart while still others included superfluous elements. This finding and others reinforced the need for some specific management techniques which are presented in the monograph.

Dissemination activities, adoptions, and the potential for adoptions varied considerably but were affected by whether the project was state- or federally-administered more than any other single factor. The state projects were funded with the idea of disseminating and institutionalizing the programs statewide. Thus, the projects were envisioned as a step in a long range state plan. By contrast, the federal grants were made mostly to local school districts with very limited dissemination and adoption capabilities. Dissemination by the local district within the state, generally, does not receive the ardent support by the state that the state administered projects do. The federally administered projects have to rely more heavily on awareness and persuasive strategies for adoptions within and outside of the state without the clout of the state education agency behind them. This places the total burden for adoptions on project personnel, whereas a large part of this responsibility is assumed by state officials for state-administered projects.

A. EVIDENCE OF IMPACT

The criteria and standards for interim and final acceptable evidence of project success presented in the monograph were applied to the eight projects to determine whether they meet the standards or could meet the standards with appropriate documentation procedures. For projects that did not meet the standards, for one reason or another, methods by which they could meet the standards are discussed in each case study. This discussion is not meant to reflect on the integrity of the projects in any way since the criteria and standards are being applied post hoc, and the projects cannot reasonably be expected to meet standards that are applied retrospectively. Rather, the criteria and standards were applied and critically assessed to determine their feasibility for application to future projects.

1. Interim Acceptable Evidence

Demonstration Impact

Three of the eight projects met the standard for the demonstration impact criterion in that the intended primary outcomes were achieved and could be attributed to the program. The two major reasons the others did not meet the standard were that they either focused on evaluating process variables rather than primary outcomes or did not use a research design that would yield reliable and valid results, such as the use of a comparison group where needed. Interviews with the evaluators and project directors of the other five projects indicated that it would have been possible to collect these data if provisions had been made during the initial planning of the projects.

Even though three of the projects used comparison groups effectively in their data collection, interviews with evaluators from all eight projects indicated that the selection of an appropriate comparison group takes time due to the administrative procedures that are required. The projects who were using comparison groups were trying to do too much too soon due to time constraints. Under these kinds of conditions, the risks to the reliability of the research design are so great that they should not be ignored.

The results of the case studies supported demonstration impact as a feasible criterion and the need for projects to identify their primary objectives. Without the clarification of the primary objectives, evaluations too often focus on process variables and exclude evaluation of the primary outcomes which are the main reason for the project's existence.

Due to the necessity for comparison groups in many evaluations and the time constraints involved in their selection, it is being suggested in the monograph that the first students taken into a program be used for a pilot test of the research design for designs that require a comparison group. Valid results should not be expected at this time. Rather, it should be a time for testing evaluation instruments and and selection procedures, among other things.

Dissemination Activities

Three projects met the standards of the dissemination activities criterion in that they met their dissemination objectives, kept appropriate records of disseminations activities, and produced dissemination materials of sufficient quality. Two of these were statewide efforts while the third was a federally administered project which had received additional funds for dissemination. A third state administered project was in the process of planning for statewide dissemination, so the criterion could not be applied.

The other projects did not have dissemination objectives and did not view dissemination as a very important function of the project. Although records were kept, in many cases they were not necessarily kept for follow-up of possible adopters. The quality and content of the dissemination materials varied. One of the most successful projects, in terms of the criterion, disseminated a total package to adopting sites which included curriculum materials, evaluation materials, and information on program costs.

The results of the case studies reinforce the necessity for projects to include dissemination objectives in their plan, to establish good recordkeeping procedures, and to adequately address the informational needs of potential adopters. The dissemination of a total package which includes evaluation instruments to adopting sites will improve the chances of collecting the final acceptable evidence.

Efforts Toward Institutionalization

All the projects were making some efforts toward institutionalization and, thus, met the standards for this criterion. The findings from the case studies suggested that the standard of "the presence of efforts being made toward institutionalization" is too weak to be of much predictive value. What is needed is a standard that encompasses what is minimally necessary for the continuation of a program. From the field experience data, it was concluded that the standard should be changed to "efforts are being made for continued funding and staff training".

This standard was chosen because it was felt that a mechanism had to be provided to train staff in the application of the program to replace staff who leave. If this training is not provided, staff attrition will eventually lead to the disappearance of the program from the school system. Staff training can range from relatively simple procedures for small programs to more elaborate procedures in larger ones.

In any event, some funding will be required to continue a program. These funds will vary depending on the magnitude of the undertaking. Funds may be from new sources or be diverted from established sources such as from older, obsolete programs. Even for small school systems that are infusing a curriculum into the ongoing system and where training of new staff can be done locally, funds will be needed for staff time and materials.

2. Final Acceptable Evidence

Utilization

Results of the case studies indicate that "utilization", as a measure of spread, is a feasible criterion for final acceptable evidence of project success and, in part, directly answers the legislative mandate. Two of the federally-administered projects and three of the state-administered projects met the standard for this criterion since the program is being fully implemented in at least two sites. The fourth state-administered project has not yet been disseminated. Thus, it is too early to apply the criterion to that project. Two of the federally funded projects did not meet the criterion.

Although eight case studies are far too few to make any definitive statements, there are indications that it will not be as difficult for the state-administered projects to meet this criterion as it will be for the federally-administered projects. This is due to the continued support the state-administered projects receive from the state education agency, particularly in the areas of statewide dissemination and institutionalization.

Long-Term Impact

None of the projects met the standards for the criterion "long-term impact". However, one state project is in the process of conducting a five-year longitudinal study of program participants using a comparision group. As a result of interviews with evaluators and project directors at the eight projects, it was concluded that the long-term impact data could be collected if funds were provided and the responsibility was appropriately delegated. Presently, school districts sample their vocational education graduates by telephone or mail periodically for five years. Follow-up of program participants and comparisons could be done as part of this endeavor. Therefore, long-term impact appears to be a feasible criterion for final acceptable evidence.

Continuation/Adoption Impact

The standard for the continuation/adoption impact criterion also has not been met by any of the projects, but one of the state-administered projects is in the process of collecting these data. Again, the findings from the eight case studies indicate that these data could be collected if someone had the responsibility for it and funds were provided.

A good method for documenting this evidence is being demonstrated by the project that is presently collecting these data. In this project the evaluation instruments and instructions for

applying them are included in the program packages that are given to adopting sites. The state is the funding agency and takes the lead in encouraging adopting sites to collect these data. Thus, the data being collected across first generation adopting sites are comparable because the same evaluation instruments and strategies are being used. An alternative would be for the funding agency to appoint a third-party evaluator to collect the data. Although this criterion appears to be the most difficult to implement, it is an important component of final acceptable evidence because it assesses the impact of the program one generation removed from the demonstration project. It attempts to answer the question of whether the program is effectively transportable to other settings.

B. CONTRIBUTIONS TO PROJECT SUCCESS

1. Pre-Grant Period

In general, the findings from the case studies support the recommendations for the pre-grant period that are discussed in the monograph. The validation process especially reinforced the usefulness of the proposal review criteria which were designed to address the areas that are important to eventual project success. Some of the factors that were particularly mentioned as being important in pre-grant planning of a project are:

- conducting a needs assessment;
- selecting a program that meets those needs;
- selecting a program that is not only compatible with long-range plans but one that can become an integral part of those plans;
- interfacing the program with the ongoing curriculum;
- using a technically competent proposal writer;
- including key proposed staff in the proposal writing, e.g., project director, evaluator, etc.
- clearly stating project objectives and related activities;
- specifying realistic timelines;
- correlating budget with activities;
- specifying a qualified and committed project director and key staff;

- identifying good facilities and necessary resources; and
- having the support of the host institution, the community, and the local and state school administrations.

Two projects were awarded planning grants for proposal development which were very useful. The planning grants provided the funds for staff time so that needs could be adequately assessed, potential programs for meeting identified needs could be investigated, plans could be formulated, and the proposal could be written. Those who received the planning grants stated that they were able to plan a better project and write a better proposal as a result of receiving the grant.

2. Grant Period

As stated in the monograph, the first few weeks after receiving the grant are usually spent in operationalizing the proposal. Some of the problems that were encountered in this process were:

- having to make adjustments in objectives;
- having to make adjustments in staff;
- underestimating requirements for implementing the program;
- having to reformulate evaluation procedures; and
- not having enough start-up time.

Other problems that were encountered during the grant period were poor management, staff turnover, trying to cope with unrealistic timelines, and trying to implement unworkable procedures that appeared in the proposal.

Factors mentioned that were related to success were:

- having clearly defined, realistic objectives;
- managing by objectives;
- having a well-qualified, dedicated project director and staff that works well together;
- having a competent third-party evaluator;
- conducting a valid formative and summative evaluation;
- having staff and administrative support;
- having dissemination objectives and a realistic dissemination plan;

- having a well-organized proposal that provides a framework for the management and evaluation of the project;
- implementing the project incrementally;
- having sufficient start-up time;
- having teachers involved;
- being student oriented;
- maintaining a liaison with the administrative and instructional staff which leads to their continuous support;
- providing intensive and effective training to adopting sites; and
- having a curriculum package that outlines systematic procedures for implementing the program, contains all necessary materials, and is attractive.

The results from the case studies largely reinforced the recommendations made for the grant period in the monograph. However, the suggested approach to the evaluation was modified. Originally, it was suggested in the monograph that a relatively detailed evaluation plan appear in the proposal. The case studies experience indicated that in most cases this is not feasible because third-party evaluators are usually hired after the grant is awarded. As a result, it is now being recommended that the parameters of the evaluation be outlined in the proposal leaving the development of an operational evaluation plan to the evaluator after receipt of the grant.

The time constraints that are placed on the evaluation due to hiring the evaluator some weeks after the grant award coupled with the problems that are encountered in the selection of a comparison group led to the recommendation that the first students participating in the program be used for a pilot test of the evaluation design, instruments, and selection procedures.

3. Post-Grant Period

In the post-grant period five projects are being continued at about the same level as they were during the grant period; one is continuing at a somewhat reduced rate; one is continuing at a very reduced level without funds; and one has been discontinued because of lack of funds. None has collected final acceptable evidence, but one is in the process of doing so.

Without federal funding the federally-administered projects that are continuing are doing a limited amount of dissemination

and technical assistance, as staff time permits. Expenses are usually paid by requesting districts. The dissemination and institutionalization of state-administered projects more often continue with funding from state and other sources.

C. ALTERNATIVE TIMING OPTIONS

Based on the literature/materials review conducted early in this project, it appears that little attention has been given to considering alternative timing options for vocational education demonstration projects. To further pursue this issue, the opinions of the project directors and evaluators from the eight projects were elicited. However, the subjective impressions of a few people cannot be expected to yield conclusive answers because the effectiveness of alternative timing options is an empirical question. With the realization that conclusions reached as a result of these interviews have limitations, we have attempted to synthesize the responses from these individuals and some of the findings from the literature/materials review into a coherent discussion of the subject.

There was general agreement among the respondents that the length of time required to adequately implement and institutionalize an innovation was dependent on the type of project being undertaken. In addition, most agreed that a five to six year funding cycle is preferable to a three year cycle, and that it would be more effective to fund fewer projects with more money over a longer period of time. Those who received planning grants thought this practice was very valuable and should be continued.

The two things that appeared to affect timing options most were the state of development that the innovation was in at the beginning of the grant period and whether the project was state- or federally administered. Even though the innovation that is proposed to be implemented in a demonstration project is supposed to be in a relatively completed state of development, that is usually not the case. In reality, refining the innovation can take from one to three years, depending on its state of development and complexity, before it can be disseminated and spread. Projects that simply attempt to modify an innovation for their own use can usually do it effectively in one year. But those projects that take on the task of developing an almost new innovation from bits and pieces of existing models require several rounds of formative evaluation of the materials and field testing which can take two or three years. All of this must be done before a program is fully implemented, demonstrated, and disseminated.

Time also has an important influence on the effectiveness of the dissemination activities. One year does not seem to be long enough to establish quality adoptions that will last and spread. Boards of education and school districts do not make quick decisions concerning the adoption of new programs. For a project that has only one year to disseminate, not much can be accomplished

beyond raising the level of awareness of potential adopters and, perhaps, getting them to a point of making a decision concerning adopting the program. In most cases, the decision to adopt will come toward the end or after the three year life span of the demonstration project. This means that it is questionable whether new adoptions will receive the type of technical assistance that is required for a new adoption to take root. The National Diffusion Network (NDN) study indicates that assimilation of a new program into a curriculum can take two to three years.* New adoptions usually require staff training and technical assistance from the host site before they can become comfortably established. Then technical assistance may be required periodically for the first year in order to reinforce the program's use. The NDN report cites the observations of Dr. Duane Webb, Colorado State Facilitator, who states that his staff maintain a close relationship with adopting sites for at least a year to ensure quality adoptions. Establishing quality adoptions is important to the spread of an innovation because quality adoptions breed other adoptions.**

Another factor that influences project success is the time during the school year that a grantee receives notification of the grant award. Most school districts schedule students and teachers approximately in April for the following fall. Grants that are awarded after these assignments have been made necessitate considerable rescheduling. The problems created by these changes impact on the project's first year. Proposed staff may not be available and there is not time to find qualified substitutes. Also, there may not be adequate time for the selection of students.

For projects that are effected by the timing cycle of the school, notification of the grant award should ideally be received by April 1 and the grant awarded by July 1. Thus, staff and students could be assigned in the spring, and the project director could begin preliminary planning during July and August.

Based on our observations, the following timing option is suggested for consideration.

One Year Planning Grant

The purpose for awarding a small one year planning grant is to provide support for the potential grantee to adequately assess needs, make appropriate plans for filling those needs, and write the proposal. A well-written proposal will provide the framework for the management, evaluation, and reporting procedures of the

*NDN: a success story. Concord, New Hampshire (03301): LEA Associates, 80 South Main, p. 6.

**Ibid., p. 2.

project. In turn, a well-written proposal will facilitate interpretation of the proposal and implementation of the project once the grant is awarded.

Five to Six Year Grant Period

Year One - Planning/Start-up

Year One would be designated for planning and start-up activities. Management and evaluation plans would be refined and finalized. Modifications would be made in the curriculum and be field or pilot tested. For more ambitious projects, this may take an additional year.

Year Two - Implementation

During Year Two the program would be fully implemented in the host setting. By the end of Year Two reliable evaluation data should be available regarding the effectiveness of the program on the student population. This data could then be used by the funding agency monitor to decide whether the program should receive further funding and in what form.

For state-administered projects that are developing a curriculum for statewide dissemination, the year following the refinement and field testing of the curriculum (whether this takes one or two years) should be devoted to establishing one or two demonstration projects in geographically continguous areas with the intention of ultimately disseminating incrementally across the state in the following two or three years.

Year Three - Dissemination/Demonstration

The project should be open for demonstration, and dissemination activities should be at their peak in the third year of funding. However, it is expected that there will be few, if any, requests for training and technical assistance to adopting sites because it will be too early in the adoption process to expect school districts to make such a decision. Using Rogers* five stages in the adoption process, it is more likely that potential adopters will move through the awareness, interest, and evaluation stages, at most, the first year of the project's dissemination activities and will not go through the trial and adoption stages until a year or two later.

The project should have good evaluation data regarding the effects of the program on the target population from their second year evaluation that will be a valuable contribution to the dissemination materials in encouraging adoptions. The third year is also the time for collection of the interim acceptable evidence of project success. For state administered programs, dissemination activities can move into the next geographically continguous section of the state.

*Rogers, E.M. Diffusion of innovations. New York: The Free Press, 1962.

Years Four and Five - Dissemination/Impact Evaluation

In years four and five, the program should be moving toward institutionalization with the gradual increasing of local or state funding and the gradual decreasing of federal funding. State administered projects will be completing their statewide dissemination activities. Dissemination activities will focus more on providing training and technical assistance to adopting sites. Provisions will be underway for institutionalizing training for new staff to compensate for staff turnover. This two year period will also be used for the collection of the final acceptable evidence of project success.

D. CONCLUSIONS

The case studies experience generally confirmed the relevancy and feasibility of the information presented in the monograph. The validation process highlighted the importance of the following points:

- clarifying and measuring primary objectives;
- stating dissemination objectives;
- using a third-patty evaluator; and
- using techniques of good management.

The experience also confirmed the usefulness of the proposal review criteria.

Modifications that were made in the monograph due to findings from the case studies are:

- to suggest that projects requiring comparison groups in their evaluation design provide enough time for the proper selection of these groups;
- to suggest that projects provide time during the first year of the grant period for pilot testing the evaluation design, instruments, and procedures used for the selection of comparison groups; and
- to change the standard for the interim criterion of efforts toward institutionalization from "presence of efforts toward institutionalization" to "efforts are being made for continued funding and staff training."

Other important findings showed:

- the value of planning grants;
- the relative inability of projects to establish quality adoptions with only one year of dissemination activities; and
- the impracticability of expecting reliable and valid target group impact data the first year of project operations.